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Cary L. Cooper
and
Ivan T. Robertson



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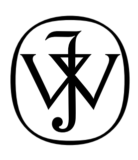
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CONTENTS

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EDITORIAL FOREWORD

In this issue of *IRIOP*, we have some of the leading international scholars from the USA, UK, Canada, Germany, and the Netherlands. A number of the chapters are revisiting themes that we reviewed in past volumes to update us on current research in that area. For example, Brad Gilbreath explores the healthy workplace but with the focus on 'the supervisor's role'—which is particularly novel. Sabine Sonnentag, Cornelia Niessen, and Sandra Ohly examine the theme of training and development but from the new perspective of learning and development at work. Although empowerment and participation have been themes of the past in *IRIOP*, the approach taken by Toby Wall, Stephen Wood, and Des Leach links this directly with performance. Finally, Eduardo Salas, Kevin Stagl, and Shawn Burke review 25 years of team effectiveness research, exploring research themes and emerging needs.

Newer topics that have not been covered before include the chapter by Brian Welle and Scott Button on workplace experiences of lesbian and gay employees, which highlights the current research and future areas for fertile exploration. Rolf van Dick assesses identification in organizational contexts, through the metaphor of 'my job is my castle'. The 'work experience' is the focal point for Miguel Quiñones piece, where he helps to set the agenda in this area for future researchers. And finally, Carolyn Axtell, Steven Fleck, and Nick Turner provide a comprehensive review of a growing research agenda item, virtual teams. The future development of virtual organizations rests on an increasing awareness of the issues and concerns as individuals begin to work more remotely.

Finally, we would like to thank our contributors and readers over the last 19 years for their support for *IRIOP*, which has grown from strength to strength, given the high-quality output from dedicated scholars throughout the world. We are both handing over the Editorship of *IRIOP* to Gerard Hodgkinson and Kevin Ford, knowing that they will carry on the tradition of top-quality reviews in the field of industrial and organizational psychology in the future. Good luck to them and thanks to all who have supported us throughout the years.

CLC
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Chapter 1

EMPOWERMENT AND PERFORMANCE

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INTRODUCTION

In the last decade the notion of empowerment has become popular in I/O psychology and management circles. Its currency among practitioners can be illustrated by the view of a CEO who stated that 'No vision, no strategy can be achieved without able and empowered employees' (cited in Argyris, 1998, p. 98). Concurrently, a survey based on a representative sample of 564 UK manufacturing companies (Waterson, Clegg, Bolden, Pepper, Warr, & Wall, 1999) showed that, although only 23% reported using empowerment extensively, 72% had adopted empowerment initiatives to at least some degree, had done so within the last few years, and had planned to develop them further.

Similar rates of adoption have been reported in Japan, Australia and Switzerland (Clegg, Wall, Pepper, Stride, Woods, Morrison et al., 2002), and in the USA (Lawler, Mohrman, & Ledford, 1998). Evidence of the continued increase in the use of empowerment in the UK comes from a study by Wood, Stride, Wall, and Clegg (2003). They followed up on the companies in Waterson et al.'s (1999) manufacturing sample four years later, and found that the proportion using empowerment extensively had nearly doubled. They also found more use of empowerment in service organizations than in manufacturing ones. Hardy and Lieba-O'Sullivan's (1998) verdict that 'the popularity of this latest approach led some writers to hail the 1990s as the "empowerment era"' (p. 452) extends into the new millennium.

Fenton-O'Creevy (1995) notes that 'prior to its adoption as a management term, the word empowerment was most often used in such fields as politics, social work, feminist theory, and Third World aid ... to mean providing individuals (usually disadvantaged) with the tools and resources to further their own interests' (p. 155). Within I/O psychology and management, empowerment typically has a more restricted meaning. It is used to denote the

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enhancement of employees' autonomy in their work, or increased involvement and influence in decision-making more generally, within the wider agenda and interests of the organization. Thus it loses the emphasis on empowerment furthering employees' own interests, though many assume they value greater empowerment. In other words empowerment involves 'moving decision-making authority down the (traditional) organizational hierarchy' (Menon, 2001, p. 156). Empowerment is a generic construct that can encompass a family of different initiatives, and can apply at all levels within the organization from shop floor to middle and relatively senior management (see also Robbins, Crino, & Fedendall, 2002).

Four main perspectives on empowerment are evident, each of which has its own distinctive literature. One is that of *psychological empowerment* (e.g., Conger & Kanungo, 1988; Thomas & Velthouse, 1990), where the emphasis is on individual cognitions of self-determination, competence, and related constructs. This is an experiential or subjective perspective, concerned with how empowered employees feel.

In contrast, the remaining three perspectives on empowerment are more directly rooted in the autonomy or influence afforded by the environment within which people work, and collectively are thus sometimes described as 'situational' or 'structural' forms of empowerment (see Spreitzer, 1995a). The second we shall call *role empowerment* to reflect the fact that it focuses on the delegation of added responsibility to individuals or groups for the execution and management of their own primary tasks. This is what London (1993) defines as 'ensuring the employee has the authority to do his or her job' (p. 57). Examples include job enrichment and self-managing work teams.

The third perspective, *organizational empowerment*, encompasses the involvement or representation of employees in decision-making within the wider enterprise. Examples include consultation and participation, styles of management fostering these, as well as representation on bodies such as management boards and through trade unions. Such practices have been rather neglected in the I/O literature in recent times, but they have been more prominent in the management and industrial relations fields.

The final perspective that we identify we call *embedded empowerment*. This refers to initiatives in which role or organizational empowerment is a core component within a wider framework. The topical example on which we will focus is work on human resource management (HRM). This is concerned with the effects of the HRM system as a whole, within which, role and organizational empowerment typically play a central role alongside other factors, such as investment in selection and training. Such systems are often labelled accordingly (e.g., 'high involvement management') (Wood, 1999).

In this chapter we critically review evidence relating to each of these four perspectives on empowerment as they bear upon performance at work. We

use the term performance to denote the achievement of the primary economic task (e.g., output in manufacturing, volume in sales). We do not include broader considerations such as employee welfare or social and environmental responsibility, as represented within the more general 'balanced score card' approach (e.g., Daft, 1998). The focus on economic performance, however, means that the outcome differs according to the perspective on the empowerment in question. Thus for psychological and role empowerment, performance is typically concerned with job or team output; whereas for organizational and embedded empowerment the focus is on the performance of the organization as a whole in terms of such measures as productivity, profit, or return on assets. We conclude by attempting to integrate findings from the four perspectives on empowerment and to identify issues for future research and practice. First, however, to set the scene, we offer a brief history of empowerment research and an outline of the wider socio-political influences affecting interest in the topic.

EMPOWERMENT RESEARCH: A BRIEF HISTORY IN CONTEXT

It is only recently that the term empowerment has become popular, and arguments could be mounted about the distinctiveness of some contemporary approaches (such as psychological empowerment). However, as most commentators observe (e.g., Arnold, Arad, Rhoades, & Drasgow, 2000), interest in situational empowerment, and especially in role empowerment, has a long history. The study of psychology and management in work settings developed in the early part of the 20th century, against the backdrop of scientific management (Taylor, 1911). That approach focused on role disempowerment by promoting narrowly defined, low discretion jobs, and the concentration of decision-making in the upper reaches of the management hierarchy. Although scientific management brought immediate productivity benefits, there was concern about the longer term value, and particularly about the social and psychological costs of the resultant work simplification. During the 1920s criticism of the practice was voiced in political circles on both sides of the Atlantic (Rose, 1978). Consequently, much early investigation, such as that funded by the Industrial Fatigue Research Board in the UK, was devoted to investigating its effects on employee well-being (Wall & Martin, 1987). That research helped create and shape the field of study that was to become I/O psychology in the US and occupational psychology in the UK. It led to recommendations for broadening the range of tasks within jobs and, less noticeably at first, for devolving more authority to job holders. This gave rise to interest in role empowerment in the form of job redesign, as the antithesis of scientific management or work simplification.

The subsequent history of I/O psychology and related fields reveals persistent advocacy of empowerment, albeit in a variety of different forms and levels of analysis. As Wilkinson (1998) notes, elements of role empowerment are evident within the human relations movement prominent in the 1920s and 1930s, inspired by Elton Mayo's Hawthorne studies. Those studies involved field experiments on the effects of work conditions (e.g., hours of work and payment incentives) on performance (Roethlisberger & Dickson, 1939). Unexpectedly, the investigators found performance benefits not only when they improved work conditions but also when they subsequently reduced them. This led to the conclusion that the process of experimenting had empowered employees in that 'supervision was free and easy, the operatives were able to set their own work pace [and that it was] an increased involvement in the job [that] was reflected in a steady improvement in production' (Warr & Wall, 1975, p. 30).

The human relations movement in turn encouraged a broadening of the perspective to include empowerment within work groups, leadership style, and wider oganizational structures. For example, that movement was soon followed by the development of socio-technical systems theory in the UK (e.g., Trist & Bamforth, 1951) that promoted role empowerment at the team level, through the advocacy of autonomous working groups (now variously called semi-autonomous, self-managing, or empowered groups or work teams (see Arnold et al., 2000, p. 249)). Commensurate with their respective cultures, the work group emphasis that emerged especially in the UK was paralleled by a continuation of the more individualistic approach in the US, where Herzberg (1966) advanced his two-factor, or motivation–hygiene, theory of work design. He coined the term 'job enrichment' to reflect its advocacy of increasing individual employee autonomy and responsibility. The same term was subsequently adopted by Hackman and Oldham (1976), whose Job Characteristics Model led to similar recommendations for job design.

There were parallel developments with respect to organizational empowerment. Pursuing the human relations theme of the role of leadership style, McGregor (1960) contrasted 'Theory X' (Taylorism) with 'Theory Y' (empowering) management approaches, recommending the latter as a means of enhancing performance. Likewise, Likert (1961), focusing on 'new patterns of management', compared System I, defined in terms of close control and lack of delegation, with systems II, III, and IV, representing progressively greater empowerment. The focus of empowerment had broadened from the work role of the employee or work group towards a more inclusive approach, and from enhanced autonomy and authority over the immediate work to include participative forms of leadership and management.

The interest in organizational empowerment gained further momentum in the 1960s, fuelled by national and international political initiatives. In the UK, for example, the tenor of the times was captured by the *Report of the*

Royal Commission on Trade Unions and Employee Associations (Royal Commission, 1968), which states 'the right to representation in decisions affecting [work] is, or should be, the prerogative of every worker in a democratic society' (paragraph 212). Similarly, the Trades Union Congress (TUC) report to that Royal Commission recommended: 'provision should be made at each level in the management structure for ... representatives of the work people employed in these industries to participate in the formulation of policy and in the day to day operation of these industries' (TUC, 1966, p. 262). Within Western Europe more generally, the Draft Fifth Directive of the European Economic Community (EEC, now the European Union, EU) recommended a representative system at board level within companies. As Towers (1973) observed, 'Over the last few years powerful socio-cultural, political and industrial pressures have coalesced to articulate themselves into a widespread demand for greater participation and democratization' (p. 7). In Western Europe that was reflected in research on industrial democracy and participation (e.g., Emery & Thorsrud, 1969; Poole, 1986). In the US interest did not expand from role to organizational empowerment to the same extent, with attention to the latter largely restricted to more general notions of participative decision-making (e.g., Locke & Schweiger, 1979) and employee 'voice' (e.g., Freeman & Medoff, 1984).

Arguably, the period from around 1980 to the early 1990s saw a lull in the interest in empowerment. With the election of Margaret Thatcher as Prime Minister in the UK, there was legislation to restrict organizational empowerment through trade unions, and 'managers' right to manage' became a slogan. In Europe, the Draft Fifth Directive was never enacted. There was a retreat from empowerment philosophies. As Wilkinson (1998) notes, 'The rhetoric of enterprise moved to the right in Western Europe and the USA' (p. 42).

Nonetheless, advocacy of empowerment did not disappear, especially within the popular management literature, and developments since have served to renew interest. As Wilkinson (1998) argues, Peters and Waterman's (1982) best-selling book, *In Search of Excellence*, 'was influential in laying the foundation for the modern empowerment movement' (p. 42), and promoted interest in empowerment as a core element of total quality management (Wilkinson, Marchington, Ackers, & Goodman, 1992). Empowerment is implicit in various concepts that were gaining ground in the 1980s, such as post-Fordism, flexible specialization, de-bureaucratization, delayering and decentralization, as reflected in prescriptive management approaches promoted by such writers as Drucker (1988) and Kanter (1989). Influential books making the case for an empowerment approach (e.g., Lawler, 1992; Pfeffer, 1994), together with new developments on psychological and embedded empowerment (the latter suggesting that HRM systems that include empowering practices are associated with superior organizational performance relative to more traditional personnel systems), have helped keep the issue on the policy and research agenda.

In addition to the above, two further factors are important in explaining why the topic of empowerment periodically resurfaces with renewed vigor. The first of these is the development of new technologies, and computer-based ones in particular, that raise questions about how empowered users should be. Although such technology was initially seen by some (e.g., Braverman, 1974) as posing a threat to empowerment at the job level, others saw a need to empower users in order to realize its full potential and achieve flexible production (e.g., Piore & Sabel, 1983; Susman & Chase, 1986). The second factor is that, by the 1990s, downturns in the economic climate made downsizing and delayering increasingly common. As organizations shed staff it became necessary to empower those they retained (Wilkinson, 1998).

Thus the current interest in empowerment can be seen to be the product of both enduring democratic beliefs and values interacting with shifts in socio-political thinking and economic conditions.

PSYCHOLOGICAL EMPOWERMENT

The most recent and distinct addition to the literature is that concerned with psychological empowerment. Current interest in this idea is usually traced back to the theoretical contribution of Conger and Kanungo (1988). They noted that, whereas there was an extensive literature in both the management and I/O fields on role empowerment and its effects on behaviour at work (which we review in the next sections), the processes or mechanisms that linked these remained largely neglected. Their approach was to focus on the psychological experience of empowerment, how this might derive from what we have defined as role empowerment (and other factors), and its behavioural outcomes. They proposed that the main effect of empowerment was to promote self-efficacy, that is, feelings of confidence in one's ability to perform tasks to a high standard, and that this in turn would affect 'both initiation and persistence of subordinates' task behaviour' (p. 476).

Following Conger and Kanungo's lead, Thomas and Velthouse (1990), in their article on the 'cognitive elements of empowerment', extended the employee experience approach. They proposed that the experience of empowerment involved four 'task assessments'. The first, 'impact', they defined as the extent to which individuals see their behaviours as producing the desired effects in their work role. The second, 'competence', refers to individuals feeling able to carry out their work tasks effectively (Conger and Kanungo's notion of self-efficacy). The third, 'meaningfulness', concerns 'the value of the task goal or purpose' (p. 672), that is the extent to which individuals feel that their work is personally significant. The final task assessment, 'choice', refers to 'causal responsibility for a person's actions' (p. 673), or perceived freedom to determine how to carry out work tasks. The basic premise is that

the components combine additively to represent feelings or perceptions of empowerment, and hence to promote behaviours that enhance work performance.

Expanding on their analysis of perceived empowerment, Thomas and Velthouse theorized about the organizational antecedents, proposing that alternative practices would affect the components differentially. For example, they suggested that delegation would act solely to enhance choice, job enrichment (which also includes a greater variety of tasks) would promote choice, meaningfulness, and impact, whereas appropriate pay systems would mainly contribute to perceptions of competence and choice.

Psychological Empowerment and its Measurement

Against this theoretical background, researchers began to develop measures of experienced empowerment, so that the various predictions about its antecedents and effects could be empirically tested. Spreitzer (1995a) took up this challenge and introduced the term psychological empowerment to denote the experiential component that Conger and Kanungo and Thomas and Velthouse had identified. Spreitzer developed a measure of the four components that Thomas and Velthouse had advocated, namely, meaning, competence, self-determination (choice), and impact. Items for the dimensions were adapted from existing scales of work characteristics, of which the following are examples: 'The work I do is very important to me' (meaning); 'I have mastered the skills necessary for my job' (competence); 'I can decide on my own how to go about doing my work' (self-determination); and 'I have significant influence over what happens in my department' (impact).

More recently, Kirkman and Rosen (1999) have developed a team-level measure of psychological empowerment. Their measure also corresponds to the Thomas and Velthouse model: the potency sub-scale is synonymous with competence, and measures 'the collective belief of a team that it can be effective' (p. 59); the meaningfulness sub-scale concerns 'a team's experiencing its tasks as important, valuable, and worthwhile' (p. 59); the autonomy dimension, synonymous with choice, refers the extent to which 'team members experience substantial freedom, independence, and discretion in their work' (p. 59); and the impact sub-scale concerns 'work that is significant and important for an organization' (p. 59). Factor analysis findings were consistent with there being four sub-scales, but these were highly intercorrelated.

Psychological Empowerment and Performance

Research to date has been concerned largely with the measurement of psychological empowerment. We do not review that in detail, as it falls outside the focus of this chapter on empowerment and performance.

However, part of the measurement task has been to examine construct validity, that is, whether measures of psychological empowerment relate as theoretically expected to antecedents and outcomes. Theory suggests that psychological empowerment, though in part a consequence of empowering work practices (i.e., enhanced employee decision-making responsibility), is also affected by other factors; and that it is psychological empowerment that results in behavioural outcomes (e.g., motivation and performance). Thus it is assumed that empowering practices alone may not be sufficient to affect behaviour, that employees also need to feel empowered before they engage in performance enhancing work activities (Conger & Kanungo, 1988; Thomas & Velthouse, 1990). In other words there are four elements in their overall prediction: that role empowerment (and other factors) will promote psychological empowerment; that psychological empowerment will enhance performance; that psychological empowerment will mediate the link between role empowerment and performance; and the possibility that role empowerment will interact with psychological empowerment to affect performance.

Spreitzer (1995a) considered the relationship of psychological empowerment with antecedent and outcome variables within her original cross-sectional measurement study. Using a sample of 393 managers, she found that all four sub-scales were positively related to the antecedents of access to information (a situational factor), and three of the four (except meaning) were associated with self-esteem (a personality factor). The relationship of the scales to outcomes was less consistent, with only competence and impact being statistically significantly related in zero-order analyses with performance (e.g., performance standards, overall success) and innovative behaviour, both as rated by subordinates. Subsequently, structural equation modelling showed a good fit for the effects of the antecedent variables collectively on psychological empowerment as a whole, but a less good fit for the effect of psychological empowerment on effectiveness and innovation (albeit that the paths were statistically significant at $p < 0.001$ for both outcomes).

That initial study did not examine the possible mediational role of empowerment, an issue taken up by Spreitzer (1995b) in a second paper using the same sample. Taking five potential antecedents, and the same two outcome measures (as rated by the respondent's subordinates and superiors), she found some evidence of mediation for the relationship of 'work unit culture' (i.e., an HRM orientation similar to that considered later in the section on embedded empowerment) with innovative behaviour, but none for the relationship of culture with effectiveness. There was no evidence of mediation of the relationship of role ambiguity, socio-political support, access to information, or access to resources, with either performance measure. Thus, for this sample, evidence of mediation is at best weak. However, as we note in our more general assessment of this area of research, the antecedents are at best indirect measures of role empowerment.

Spreitzer (1996), together with colleagues (Spreitzer, Kizilos, & Nason, 1997), continuing to use the original sample of managers, went on to reconsider the same potential antecedents of psychological empowerment as in her 1995(b) paper (i.e., role ambiguity, socio-political support, access to resources, work unit culture). However, this time the aim was to determine more rigorously whether the four variables differentially predict outcomes. The study considered each sub-scale while controlling for the other three. This showed that, while collectively the sub-scales predicted outcomes relating to work effectiveness, work satisfaction, and job strain, no one dimension did so uniquely. Spreitzer et al. (1997) thus concluded that 'employees need to experience each of the empowerment dimensions in order to achieve all of the hoped for outcomes of empowerment' (p. 679).

Sprietzer's series of studies has served to clarify and operationalize the construct of psychological empowerment, and to establish that it is associated with several of the assumed antecedents and outcomes. For our present purposes, however, an important limitation is that this work is based on a single sample of managers, leaving its generalizability unknown. Subsequent studies by others help to address this limitation.

Gagné, Senecal, and Koestner (1997) report findings based on a sample of 157 technical and telemarketing employees. Factor analysis confirmed the expected four dimensions of psychological empowerment. Using measures from the Job Diagnostic Survey (JDS) (Hackman & Oldham, 1975), they investigated, through path analysis, how perceived job characteristics (task significance, feedback from the job, feedback from agents, and autonomy support) related to psychological empowerment, and if psychological empowerment mediated the relationship of those characteristics with intrinsic motivation. Findings showed differential effects. For instance, task significance predicted only meaning, feedback from the job predicted impact and autonomy (self-determination), and autonomy support also predicted impact and autonomy. The findings further showed that, for two of the dimensions, meaning and autonomy, those experiencing greater psychological empowerment also reported stronger intrinsic motivation. However, the third dimension, impact, was unrelated to intrinsic motivation; whereas the fourth, competence, was negatively associated. There was also evidence that certain dimensions of psychological empowerment mediated the link between the job characteristics and the outcome (e.g., the relationship between autonomy support and intrinsic motivation was through the psychological empowerment dimension of autonomy). This study is based solely on cross-sectional and self-report data and as such is methodologically limited. Nonetheless, it extends investigations to another type of sample and, contrary to Spreitzer et al.'s (1997) conclusion, suggests there may be dangers in treating the different dimensions of psychological empowerment as a single construct.

More recently, Siegall and Gardner (2000) have examined the relationship of communication with a supervisor, attitude towards the company, teamwork and concern for performance, with the dimensions of empowerment. Applying regression analysis to data from a sample of 203 lower level manufacturing employees, they found communication with a supervisor to be associated with experienced meaning, self-determination and impact, and that attitude to the company contributed solely to meaning. Teamwork was unrelated to any dimension of psychological empowerment when the other variables were controlled. Turning to the question of effectiveness, this study also showed that those experiencing more meaning and self-determination recorded greater concern for performance. Though, as for the previous work, this study is methodologically limited, because of its cross-sectional design and reliance solely on self-report data, it again suggests the components of psychological empowerment are differentially associated not only with assumed antecedents but also with a performance-related outcome.

Liden, Wayne, and Sparrowe (2000) report a study on a sample of 337 lower-level service company employees. They focused in particular on the extent to which the four dimensions of psychological empowerment mediate the relationship between job characteristics (an aggregate of task identity, task significance, and feedback from work) and outcomes (work satisfaction, organizational commitment, and job performance). Using regression analyses, they found that meaning completely accounted for the relationship between job characteristics and commitment; and that meaning and competence partially accounted for the relationship between job characteristics and satisfaction.

The findings for performance (rated by supervisors) were rather different. Although zero-order correlations suggested that all four dimensions of psychological empowerment were positively associated with the outcome, regression analysis showed only one component, competence, was related to performance when the effects of the other three were controlled. Moreover, there was no mediation, because the job characteristics were unrelated to performance in the first place. A weakness of this study, however, is that the measure of job characteristics excluded the most direct measure of role empowerment, namely autonomy, and hence the most likely antecedent of psychological empowerment. We shall consider this further in the next section.

The last study we highlight is that by Kirkman and Rosen (1999). They also examined, cross-sectionally, whether psychological empowerment was a mediator of the relationship between antecedents (team leader behaviours, production/service responsibilities, team-based human resource policies, and social structure) and outcomes (e.g., productivity and customer service). However, their investigation was based on a sample of some 100 teams, from three manufacturing companies and one insurance company. They administered the team-level measure of experienced empowerment described

earlier (p. 7) which, because of the high correlations between the four subscales, they used to provide a single empowerment score.

There were three key findings. First, all four antecedents (holding the others constant) were positively related to team psychological empowerment. Second, teams reporting greater empowerment had higher productivity and provided better customer service (in both cases as assessed by external team leaders). Third, the observed relationship between the antecedent variables and performance (and overall index of productivity and customer service together with a measure of proactivity) was accounted for by psychological empowerment, with the sole exception of team leader behaviours (which retained a direct effect on performance over and above that mediated by team empowerment).

Taking Stock

It is evident from the studies reviewed, together with many others in the literature (e.g., Arnold et al., 2000; Laschinger, Finegan, Shamian, & Almost, 2001), that the construct of psychological empowerment has attracted a great deal of attention. Nonetheless, research on this topic is still in its infancy. Thus, although one may reach preliminary conclusions, the main lessons concern issues for future inquiry.

Perhaps the strongest conclusion is that the theoretically expected four-dimensional nature of psychological empowerment has been supported across diverse samples. However, this observation requires qualification. A study by Fulford and Enz (1995) found that while meaningfulness and self-efficacy were distinct dimensions, impact and self-determination came together as a third. Siegall and Gardner's (2000) exploratory factor analysis found support for the dimensions of meaning, competence, and impact, but self-determination did not emerge unless they lowered the statistical criteria below normal levels. Also, the problem of discriminant validity was an issue for Kirkman and Rosen's (1999) team-level measure, in that the four dimensions they found were so highly related that they aggregated them into a single index for analytic purposes. This has been a problem from the outset as is evident from Spreitzer's (1995a) comment in the original measurement study, that 'The limited discriminant validity found ... suggest[s] that continued refinement of the measures is necessary' (p. 1461).

The identification of stable and distinct dimensions of psychological empowerment is also likely to be important for conceptual and theoretical reasons. A possibility that has been largely neglected is that the components are sequentially related. For instance, it seems likely that self-determination (i.e., choice or experienced autonomy) is a prerequisite for one or more of the other components. This perspective is supported by Kraimer, Sibert, and Liden's (1999) analysis suggesting that 'self-determination must be present for impact to occur' (p. 140). Drawing on Liden and Arad's (1996) model of

empowerment, Kraimer et al. commented: 'Self-determination indicates power potential, and impact reflects actual power. Thus, potential power is a necessary condition for actual power in the workplace' (p. 140). They, accordingly, recommended that Spreizter's model should include a direct pathway between self-determination and impact. Equally, it is plausible that self-determination is a precursor of meaning, or that competence leads to impact. The emphasis thus far on dimensions of psychological empowerment has discouraged investigation of possible relationships among these dimensions. This should be a priority for future research.

Another important issue concerns the relationship between role and psychological empowerment. Investigators have tended not to include in their studies the one aspect of role empowerment, namely the degree of autonomy or responsibility afforded to job incumbents, that would be expected to predict directly self-determination or choice (i.e., experienced autonomy) (Gagné et al., 1997 are an exception). The most likely reason for this is that measurement of the two concepts is confounded. This arises because, to measure psychological empowerment, Spreitzer (1995a) adapted the autonomy items from Hackman and Oldham's (1975) Job Diagnostic Survey (JDS), which was designed to measure role empowerment. For example, one of the three items in the self-determination sub-scale of psychological empowerment is 'I have considerable opportunity for independence and freedom in how I do my job' (Spreitzer, 1995a, p. 1465), and one of three items in the autonomy scale of the JDS is, 'The job gives me considerable opportunity for independence and freedom in how I do the work' (Cook, Hepworth, Wall, & Warr, 1981, p. 184). The basic problem is that, though psychological and situational empowerment are conceptually distinct at the operational level, where reliance is placed on self-report measures the distinction is almost impossible to uphold (Liden et al., 2000). Given that psychological empowerment is quintessentially an experiential construct, leaving no alternative but to use self-report measures, the implication is that future work should deploy objective, or at least independent, corresponding measures of role empowerment.

Similarly, there is a need, wherever possible, for objective or independent measures of outcomes. Asking employees the extent to which they feel their work has impact, for example, would seem to be necessarily related to self-reports of performance, making findings somewhat tautologous. As we have seen, research so far has fared better in this respect, but nonetheless self-report outcome measures are not uncommon.

Another requirement is for future research to move beyond the cross-sectional research designs that so far have exclusively been used. Cross-sectional research may be acceptable in the development of a new research area, where it is a cost-effective strategy for developing measures and obtaining circumstantial evidence for substantive predictions. The point has been reached, however, where it is essential to move to longitudinal and

intervention studies, in which role empowerment is substantially changed and its subsequent effects on psychological empowerment and performance assessed.

Finally, future research should explore all aspects of the agenda originally set out. This not only involves investigating the antecedents (both situational and individual) and outcomes of psychological empowerment, and hence the mediating role of that variable, but also the possibility that situational and psychological empowerment interact to affect outcomes. Clearly, if role or organizational empowerment practices are the sole determinants of psychological empowerment, then a mediational approach is sufficient. However, it appears that psychological empowerment is also determined by personality and other individual difference factors, such as locus of control and self-esteem (Spreitzer, 1995a). That being the case, psychological empowerment can vary independently of situational empowerment, making the possibility of interaction between the two more likely.

ROLE EMPOWERMENT

As discussed in our brief history of empowerment research, role empowerment was the original emphasis of research and practice and remains of central concern today. This is evident, for example, in Robbins et al.'s (2002) outline of an integrative model of empowerment, that encompasses all four aspects of empowerment considered in this chapter. They propose 'that the most critical step in the empowerment process is the creation of a local work environment within a broader organizational context that will provide both an opportunity to exercise one's full range of authority and power (i.e., empowered behaviors), as well as the intrinsic motivation within employees to engage in that type of behavior (i.e., psychological empowerment)' (p. 420). This carries forward the job enrichment ethos as exemplified by Herzberg's (1966) two-factor theory, Hackman and Oldham's (1976) Job Characteristics Model (JCM), and the socio-technical systems approach focusing on autonomous work groups.

The JCM represents this traditional perspective on empowerment. The model identifies five core job characteristics, namely skill variety, task identity, task significance, autonomy, and feedback from the job itself. These are specified as determinants of three critical psychological states. The first three job characteristics are posited to contribute collectively to experienced meaningfulness; autonomy to experienced responsibility; and feedback to knowledge of results. In turn, the critical psychological states are cast collectively as promoting work satisfaction, internal work motivation, task performance, and reduced absence and labour turnover. Of the five job characteristics, autonomy is recognized within the JCM as having more

bearing on the critical psychological states, and hence performance as an outcome, than task variety, task identity, or task significance.

There already exist comprehensive reviews and critiques of the empirical literature on job enrichment and autonomous work groups engendered by the JCM, socio-technical systems thinking, and cognate approaches (e.g., Parker & Wall, 1998; Parker, Wall, & Cordery, 2001). We thus focus on more recent developments encouraged by two important limitations highlighted by those reviews. One is that the mechanisms linking empowerment to performance have remained largely unexplored, and seem likely to extend beyond the motivational ones usually assumed. The other is the need to better understand the circumstances (i.e., contingencies) under which this type of empowerment does and does not affect performance.

Mechanisms Linking Role Empowerment and Performance

The traditional assumption is that job enrichment promotes performance through motivation in the form of effort (e.g., Campion & McClelland, 1993). Yet rarely has this assumption been directly tested, for instance by empirical investigation of whether change in such role empowerment is associated with change in employee motivation, and that the latter accounts for any change in performance. Indeed, in the highly influential JCM, intrinsic motivation is cast as an outcome alongside job performance, rather than a mechanism through which performance is achieved. Thus motivation as a mechanism should remain on the agenda.

For our present purposes, however, we look beyond that traditional motivational mechanism, and concentrate on likely additional ones. In this respect a number of promising suggestions have recently surfaced. One, offered by Parker, Wall, and Jackson (1997), concerns 'flexible employee work orientations'. Their argument is that training and communication can be sufficient for surface acceptance of new 'strategic orientations', such as the minimization of inventory (e.g., just-in-time) or use of preventive problem-solving (e.g., total production maintenance); but more fundamental internalization requires role empowerment. As the authors state: 'It is one thing for employees to endorse a set of general organization-wide principles, and quite another for them to carry those through to the extent that they change their views of their own work responsibilities [that is] develop new and complementary *role orientations*' (p. 900). Parker et al. (1997) go on to predict that 'the required role orientations will only develop if employees are given more autonomy over their work' (p. 901), and test this prediction across three studies. In the first study they developed and examined the validity of new measures of strategic and role orientation. The second and third studies investigated changes in orientation following the introduction of the new working practices of just-in-time and total quality management, with and without role empowerment. The findings showed that whereas strategic

orientation changed as a function of the introduction of the new work practices, irrespective of role empowerment, change in role orientations was only realized where there was also role empowerment. The assumed link to performance, however, was not directly addressed.

One of the implications of role empowerment is that employees take on a broader set of duties, and it is this that leads to performance benefits. Typically, where job enrichment or autonomous group working is implemented, added to the execution of the core technical activities (e.g., assembling a washing machine or recording client financial transactions) is responsibility for a range of supporting tasks. These may include designing new work procedures or methods, liaising with suppliers or customers, allocating tasks among coworkers, and representing coworkers in meetings with senior management. In other words, there is an increase in role breadth, defined as 'activities that are more proactive, interpersonal and integrative in their nature' (Parker, 1998, p. 836). Parker (1998) proposes that role empowerment will promote greater 'role breadth self-efficacy' (RBSE), that is the 'perception that [employees] are able to carry out these types of task' (p. 836), and that this will enhance performance.

Empirical investigation of RBSE involved the development of a measure and examination of its association with role empowerment in two large samples of manufacturing employees (Parker, 1998). The measure was shown to be distinct from related concepts such as proactive personality and self-esteem. Also as predicted, cross-sectional analyses in both studies showed role empowerment (e.g., job enrichment—task control and decision-making influence) to be a key predictor of RBSE. A longitudinal analysis further supported this finding, showing that increased job enrichment was associated with increased RBSE. Thus role breadth self-efficacy is a clear candidate as a mechanism linking role empowerment to performance, but its direct link with performance remains to be directly tested.

Perhaps one of the most intriguing and challenging recent developments on mechanisms linking role empowerment to performance is that concerned with learning. More specifically, the proposition is that role empowerment promotes knowledge and understanding in employees that enable them to carry out their work more effectively. This idea has been mooted for some time. Herzberg (1966), for example, suggested that 'job design promotes psychological growth which involves knowing more, seeing more relationships in what we know, being creative, being effective in ambiguous situations' (p. 70). Similarly, Susman and Chase (1986) argued that 'aside from the motivational benefits they may derive from enriched jobs ... employees are in a better position to see the relationships between specific actions and their consequences' (p. 268); and Wagner, Leana, Locke, and Schweiger (1997) that the benefits of role empowerment 'might lie not in its power to motivate employees, but rather in its ability to facilitate cognitive growth and awareness' (p. 50). Action Theory (Hacker, 1985; Frese & Zapf, 1994) also

specifies that control at work is a prerequisite for learning; and Karasek and Theorell's (1990) Demand Control Model identifies high decision latitude (i.e., autonomy), together with demands, as necessary for 'active learning'.

Despite this theoretical heritage, empirical investigation of the link between role empowerment and knowledge development in work settings has been scant. In a longitudinal change study, Wall, Jackson, and Davids (1992) examined the effect of increased operator control on the performance of a robotics system. The performance of the system was determined by the effectiveness of fault management. They reasoned that effects showing an immediate reduction in the time taken to correct operational faults would reflect the application of existing knowledge, whereas a progressive reduction in the number of faults would indicate the development of new knowledge. They found evidence of both effects. In an earlier study of computer-controlled assembly operators, Jackson and Wall (1991) showed equivalent learning-related effects.

In neither of those studies, however, was the operators' knowledge directly measured. This omission was addressed by Leach, Wall, and Jackson (2003), who developed knowledge elicitation techniques for use in work settings to examine change in knowledge following an empowerment initiative for operators of complex manufacturing technology. They found the predicted increase in knowledge, particularly among less experienced employees. Improvements were also recorded in employee self-confidence and strain, but not in job motivation or job satisfaction. This study clearly focuses on conscious knowledge, and so does not begin to address the possibility that role empowerment might also enhance tacit or implicit knowledge of the kind identified in the cognitive psychology literature (e.g., Berry & Broadbent, 1984). Field investigations of this possibility should be a priority. More generally, the potential of combining role empowerment approaches in I/O psychology with models and methods in cognitive psychology provides a promising, and methodologically challenging, line for future development (Hodgkinson, 2003).

A number of other possible mechanisms linking role empowerment to performance have been suggested (Parker et al., 2001). One, implicit in the socio-technical systems principle of control of variance at source, is that of quick response. Time is saved simply because empowered employees can carry out tasks that otherwise they would have to wait for others to complete. Other suggested mechanisms include the possibility that empowerment operates through labour intensification or improved goal-setting (Kelly, 1992), by reducing indirect costs (e.g., fewer supervisors or technical support staff, Wall, Kemp, Clegg, & Jackson, 1986), by enhancing perspective-taking (Parker & Axtell, 2002) and, in the case of group work, by enhancing team processes (Wagner et al., 1997).

Although many promising ideas concerning the mechanisms linking role empowerment to performance have been put forward, this area of inquiry is

very much in its infancy. There is as yet no substantial body of evidence supporting any one mechanism. Moreover, investigators have only taken the first step, of showing that particular variables such as RBSE and knowledge are associated with role empowerment, treating them in effect as outcomes. They have not directly tested whether these variables are mechanisms in the full meaning of that term, that is, variables that can account for observed relationships between empowerment and performance. Equally, there have been no studies looking at the separate and combined effects of different possible mechanisms, and this is important because it seems likely that more than one is involved. Increased knowledge, for example, is likely to promote both role breadth self-efficacy and motivation. The question of mechanisms is important, because if we can establish how and why role empowerment affects performance then it will be easier to understand the circumstances under which it will be effective. This leads us to our second issue.

Contingencies and the Link between Role Empowerment and Performance

Kelly (1992) reviewed 31 of the methodologically most rigorous job redesign studies, and found job performance change ranging from −17 to +50%, with evidence of performance gains of 10% or more in 13 cases. A recent evaluation of team-based interventions shows equally variable performance results (e.g., Cohen & Bailey, 1997). The same applies in Waterson et al.'s (1999) survey of UK manufacturing companies, where, of the 406 (out of 564) with empowerment strategies, 22% reported no performance effect, 32% moderate gains, and only 46% more substantial benefits. Clearly there is a case for addressing the question of the circumstances under which such role empowerment does and does not promote performance.

There have been many suggestions concerning contingencies likely to affect the impact of role empowerment on performance. For team-based empowerment (e.g., autonomous work groups), Wageman (1997) identified goal clarity, demographic and skill diversity, size, stable membership, and leadership style as factors likely to enhance or inhibit performance outcomes. Other proposed contingency factors include shared attitudes and interpersonal trust (Dean, Brandes, & Dharwadkar, 1998), collective efficacy beliefs (Little & Madigan, 1997), cohesiveness (Banker, Field, Schroeder, & Sinha, 1996), personality and ability mix (Stevens & Campion, 1999), and transformational leadership (Arnold et al., 2000). All these are plausible suggestions, but as yet they lack the degree of empirical support and theoretical development to make them compelling.

One development, however, shows particular promise, and this focuses on operational uncertainty. This concept denotes the extent to which it is unclear how best to do the work, which tends to increase as a function of

frequency of change in product or service requirements, variability in materials, and unreliability of technology. In an integrating analysis, Wall, Cordery, and Clegg (2002) propose that:

> the effectiveness of empowerment practices ... will be contingent on the degree of operational uncertainty that prevails (and) that this proposition generalizes across the various levels of analysis and areas of application of empowerment, from its use as an overall principle of organizational design, through its manifestation in work design (e.g., as in job enrichment or self-managing teams), to its application as part of other initiatives (e.g., as part of total quality management) (pp. 148–149).

Clearly that proposition encompasses all three kinds of situational empowerment we cover in this chapter, namely role, organizational, and embedded. Here, however, we focus on the case of role empowerment, where two considerations help support the claim. The first of these is the existence of empirical evidence consistent with the proposition. Wall, Corbett, Martin, Clegg, and Jackson (1990) showed that increasing operator control for employees working on computer-based assembly systems resulted in substantial performance gains for systems characterized by high operational uncertainty, but no discernible effects when they worked on systems with low operational uncertainty. Cordery, Wright, and Wall (1997) reported equivalent findings for self-managing work groups in water treatment plants.

The second supporting factor is the logical consistency between the contingency and the learning mechanism proposed above. Wall et al. (2002), argue that, at a psychological level, operational uncertainty means a lack of knowledge about production requirements, and hence a lack of understanding about cause and effect. As a result, where there is operational uncertainty:

> there is both the opportunity to empower employees, in terms of giving them important areas of decision-making, and scope for learning. Conversely, where there is little uncertainty, the knowledge requirements of the work are low, and there is consequently little scope for knowledge development and less opportunity to offer employees real empowerment. It follows that the effects of empowerment on performance will increase as the degree of production uncertainty increases (Wall et al., 2002, p. 159).

The case for operational uncertainty as a contingency may be an attractive one, and more persuasive than some others because of the empirical and theoretical support that can be marshalled in its favour. Nonetheless, that support is still limited and indicates the potential rather than product of this line of inquiry. The more general message is that, as for the study of mechanisms, investigation of contingencies is calling out for empirical and theoretical development. If contingencies exist, and remain unrecognized,

many organizations persuaded to follow the empowerment path will achieve disappointing results; others who would benefit from following this path will be dissuaded from doing so; and research on the effectiveness of empowerment initiatives will yield inconsistent results.

ORGANIZATIONAL EMPOWERMENT

We use the term organizational empowerment to denote practices that enable employees to have a say in decisions about the management and strategy of their organization. This distinguishes it from role empowerment, which is about autonomy in the execution of the individual's or team's primary task. Organizational empowerment is typically concerned with decisions about terms and conditions of employment, working practices, quality management, environmental strategy, investment in new technology, mergers and acquisitions, or even whether or not to adopt a strategy of enhancing role empowerment. The two types of empowerment may be related, as many of these strategic decisions, and especially those concerned with terms and conditions and working practices, can enable or constrain role empowerment.

In addition, much organizational empowerment is through representatives and thus for most employees is indirect. Examples of such organizational empowerment include representation through trade unions, works councils, consultative committees and supervisory boards, and involvement in quality circles. However, organizational empowerment through the use of more direct methods (e.g., two-way team briefing) is an increasingly important part of organizational life (see Forth & Millward, 2002). Here we focus on trade unions and works councils, as this has dominated research. Given the organization-wide emphasis of this form of empowerment, the appropriate level of analysis for performance is the organization.

The Nature of Trade Unions

Trade unions provide a distinct form of organizational empowerment as they are associations of workers that are independent of management and have an existence beyond the boundaries of the organization. In most countries trade union rights are protected by the State, though this may take a variety of forms. Trade union rights may be part of the constitution, as is the case in Germany, Italy, Sweden, Brazil, and South Africa. In contrast, in North America and the UK, where no such constitutional right exists, there are laws defining the processes of the certification of trade unions so their independence from management is protected.

Regardless of the nature of the legal rights underpinning trade unions, they have three main functions, to: (1) negotiate on behalf of their members for better terms and conditions of employment; (2) offer employees a voice with which to articulate their interests and grievances to management; and (3) help

legitimize, monitor, and enforce agreements and performance requirements. The existence of trade unions beyond the workplace, through their own national organizations and their joint coalitions (such as the TUC in the UK and the American Federation of Labor-Congress of Industrial Organizations in the USA), means that they are also involved in national political processes. This involvement is typically either through lobbying or more formal membership of tripartite bodies of trade unions, employers' federations and government (e.g., the corporatist industrial relations bodies that exist in Germany and the Netherlands or in the Low Pay Commission in the UK).

Trade Unions and Performance: The Arguments

In contrast to the other forms of empowerment considered in this chapter, that are expected to enhance performance, trade unions can be associated with both positive and negative effects. Trade unions have a monopoly face and a voice face (Freeman & Medoff, 1984). Acting as monopolies they are predicted to have negative effects on performance in two ways. First, by using their power to bargain for better wages and fringe benefits, unions secure for their members a greater proportion of the company's surplus revenue and hence reduce profits. Second, unions can negotiate the rules regulating jobs, such as those involving internal job mobility, redundancy, the allocation of overtime, demarcations between occupations, and working conditions. It is generally assumed that such 'restrictive practices' constrain the optimal allocation of labour (Machin & Wadhwani, 1991; Metcalf, 1989).

In contrast, through their voice face, unions are predicted to have positive effects on performance. The argument, drawing on Hirschman's (1971) distinction between 'exit' and 'voice', is that, by providing a conduit for employees to have their say, unions help to retain skilled labour and to motivate employees. Voice refers to 'the use of direct communication to bring actual and desired conditions closer together', which in employment situations entails 'discussing with an employer conditions that ought to be changed', as opposed to exit which means 'quitting the job' (Freeman & Medoff, 1984, p. 8). Voice, which Freeman and Medoff identify with trade unionism, is expected to promote performance by allowing workers safely to express their grievances. This can help remove the causes of those grievances, thus increasing employee motivation and satisfaction and reducing labour turnover (i.e., exit). Moreover, employee voice may be used to suggest improvements in working practices, training methods, and safety procedures. This cooperative dimension to employment relations is part of what is increasingly being labelled a 'partnership' approach, in contrast to the antagonistic one more traditionally assumed. Indeed Freeman and Medoff

(1984) regard 'generally cooperative labor-management relations ... as a determinant, in its own right, of high productivity' (p. 224).

An additional way in which trade unions may contribute positively to organizational performance is in their role as agents of effective management. More specifically, union representatives, as a result of their involvement in collective bargaining, both legitimize and help police agreements. For example, unions often are involved in day-to-day management processes, such as the nomination of employees for training, overtime, and redundancy, or in disciplinary processes. In so far as they fulfill this monitoring function, unions and their representatives will help reduce both management costs and disruption from non-conformity.

Taken together, the effects of the two faces of unionism on organizational performance may be negligible, to the extent that wage effects and restrictive practices of unions are offset by the positive effects of voice. It might however be the case that unions have net positive effects on productivity (i.e., output per employee) but negative effects on profits, as the wage effects are not sufficiently offset by the productivity gains. However, this assumes the relationships apply to organizations in general, but the effects may be contingent. Here there are four considerations. First, product market competition may affect the impact of unionism on performance. Unions are likely to have more success in raising wages where there is less product market competition. If unions operated in perfectly competitive markets, and all they did were to raise wages and fringe benefits, in the long run both they and the firms in which they were recognized would not survive in competition with non-unionized firms. Similarly product market competition is likely to limit the scope for restrictive practices. Second, and in contrast, where labour is scarce the power of the union increases, so workers are more able to maintain their own working practices. Third, the degree of cooperation between management and unions (and employees) may act more as a moderator of the relationship between unions and performance than a determinant in its own right, as indeed Freeman and Medoff (1984) also suggest when they say 'unionism *per se* is neither a plus nor a minus to productivity. What matters is how unions and management interact at the workplace' (p. 179). Finally, the various relationships may vary with the institutional context. For example, where institutional arrangements permit industry-wide bargaining (as has been commonly the case in much of Europe) wages may be equivalent across all unionized firms in an industrial sector, so that the relative performance of the companies depends on other factors. This can also arise without industry-wide bargaining. For example, in the absence of foreign competition, firms in oligopolistic industries, such as the automobile industry in the USA, are able to achieve a similar effect by a process of coordinated bargaining. More specifically, as Kochan et al. (1986) have recorded, a bargain struck with one firm would set the pattern for the negotiations with the others.

Trade Unions and Performance: The Evidence

Empirical investigation has a major role to play in helping to resolve the net effect of trade unions on organizational performance. Early studies of the relationship between unionism and performance concentrated on the wage-rate issue. For instance Lewis (1986) found that the union mark-up for the US was around 15%, varying between 12 and 19% between 1967 and 1979. Subsequent work produced similar figures for the 1980s, but more recent analysis suggests that although a mark-up effect persists it has declined in industries where the product market had become more competitive (Bratsberg & Ragen, 2002). In Britain the union mark-up prior to the 1980s was slightly lower, being estimated at 10% (Blanchflower, 1999). The extent to which it remained stable with the increasingly competitive markets of the 1980s and 1990s is a matter of debate: some studies suggest persistence (e.g., Blanchflower, 1999) but others a considerable reduction (e.g., Booth & Bryan, 2001). However, a recent analysis comparing wage differentials between union and non-union members suggests that the membership premium did fall from 12.2% between 1993–1995 to 5.1% between 1999–2001, and for some workers (e.g., highly educated ones) it almost collapsed (Blanchflower & Bryson, 2003). This evidence supports the argument that unionization enhances wage rates, but that it is moderated by product market conditions and/or labour market conditions. Blanchflower and Bryson (2003) also took a comparative perspective, and found that while a substantial union premium is evident in many countries (such as Canada, Australia, Denmark, and Japan), the institutional arrangements in several European countries (e.g., Germany, France, Netherlands, and Sweden) mean that union wage settlements spill over to non-union workers.

Freeman and Medoff (1984) were the first to extend the analysis of trade union effects on wages to productivity and financial performance. They found for the USA that unionization had a modest positive effect on productivity, and that this was moderated by the product market competition and a cooperative industrial relations climate. However, profits were reduced by unionism, and this was more pronounced where product competition was low.

There have been many studies following Freeman and Medoff's lead, and reviews of this literature present a consistent picture (e.g., Belman, 1992). Doucouliagos and Laroche (2000) conducted a meta-analysis of 79 published papers on the union–productivity link. Virtually half of these are based on data from the USA, with the remainder covering France, UK, Australia, Germany, Korea, Japan, and Canada. Analysis revealed no consistent association between unions and productivity. However, there was evidence of effects varying by country, industry sector, and time. For instance, there was a negative relationship between unionization and productivity growth for Australia, no relationship within the UK and the USA, and a positive one

for Germany. With regard to industry sector, a positive relationship between unionization and productivity was found in the USA for manufacturing and construction, but not in the rest of the economy. The time-sensitivity of the results is illustrated by the fact that the union–productivity relationship was negative in studies covering the 1950s but was subsequently generally positive. Finally, across the sample as a whole, a hostile industrial relations climate was associated with a negative relationship between unions and productivity, consistent with the argument that cooperative labour relations is a contingency.

Metcalf's (2003) review and interpretation of the evidence from the USA, Canada, UK, Germany, Japan, and Australia provides a complementary perspective to Doucouliagos and Laroche (2000), as it allows for more qualitative judgement than did their meta-analysis. Metcalf, confirms both the positive association between unionism and productivity and the negative one with profit, and highlights change over time. For instance, in both the UK and Australia productivity was negatively associated with unionization prior to the 1990s, when the labour–management relationships might be characterized as more antagonistic; but since the restrictions on union power introduced around that time, and a generally more cooperative climate of industrial relations, this is no longer the case. Where the product market is monopolistic (measured by five or fewer competitors) Metcalf suggests that unions still tend to lower productivity. Finally, he presents evidence that cooperative labour relations also moderate the relationship. Particularly significant is the finding, based on a national study of UK workplaces, that unionized workplaces with partnership arrangements perform better in terms of both profitability and productivity than all other types of workplace, unionized or otherwise.

Overview

The overall conclusion is that organizational empowerment based on trade unionism tends to raise wages, raise productivity, but depress profits—the precise nature of these relationships is moderated by a range of factors, the most important of which appear to be product market competition and cooperative labour relations.

The studies, however, have three main methodological weaknesses. First, although there has been some attempt to track change over time, such analysis is based largely on comparing findings from separate cross-sectional studies rather than systematic longitudinal data. This does not provide a basis for causal inference. The second weakness is that while allowance in some studies is made for the co-cooperativeness of relations between management and the union, in general unions are treated homogeneously. It seems likely such union–management relationships are a major factor, and the few studies taking it into account support this view. The third limitation is that

evidence to date is based on comparing unionized with non-unionized workplaces or firms, regardless of the nature of employment relations practices in non-unionized firms. In some cases, non-unionized organizations have arrangements in place that equate to those offered by the union. For instance, though unions may provide for employee voice and involvement in wage setting, so too will other non-union provisions.

The main implication of these points is that research to date is at a very general level of analysis, and that more allowance needs to be made for union policy and alternative non-union provisions. The evidence is that multiple channels affect employee relations. This is certainly the case in the UK (Gospel & Willman, 2003) and probably much of Europe (Fenton-O'Creevy, Wood, & Callerot, 1998), where any bargaining that may occur in workplaces may still predominantly engage the union but much of the consultation and information sharing will involve either joint consultative committees or direct methods such as team briefings. Accordingly we need research that reflects the decline in the monopoly of the union over representation. This need is reflected in studies that attempt to look at unions in the context of direct communication and other practices associated with HRM (e.g., Wood & de Menezes, 1998).

The Nature of Works Councils

Works councils are, Frege (2002) observes, 'widely seen as the most prominent, widespread and powerful form of industrial democracy in contemporary capitalist society' (p. 221). They are legally constituted bodies, which, like trade unions, are independent of management. They can be defined as 'institutionalised bodies of collective worker participation at workplace level with specific information, consultative and codetermination rights in personnel, social and economic affairs' (Frege, 2002, p. 223). They are largely confined to northern European countries, such as Germany, the Netherlands, and Sweden, but they have been recently introduced into the transitional economies of eastern Europe and South Korea. Here we confine our discussion to Germany, as the literature on the performance effects of works councils is largely limited to that country.

Workers have a legal right to establish works councils in Germany in all organizations with five or more employees. Nonetheless, they are not ubiquitous. Addison, Bellman, Schnabel, and Wagner (2002) estimated that works councils existed in only 16.3% of all eligible private enterprises in Germany, but that this covered 53% of the private sector workforce. The chance of having a works council increases markedly with size of company. They also show that only 29.9% of workplaces with between 21 and 50 employees have a works council but above that figure of employees the majority of workplaces tend to have them, rising to 91.7% of workplaces with over 500 employees.

However, both the proportion of firms with works councils and the coverage rate of works councils has been declining since the 1980s (Hassel, 1999).

Works councils have several rights of varying strength (Jacobi, Keller, & Müller-Jentsch, 1998). The strongest is co-determination, which means the works council has at least a provisional right of veto over managerial decisions, which may extend to joint decision-making for certain issues. Works councils are given co-determination rights over 'social issues', such as principles of remuneration, regulation of overtime and short-time working, holiday arrangements, performance monitoring methods, and personnel matters that regulate the internal labour market (e.g., policies on recruitment and grading). The second type of right is to consultation, which applies to personnel planning, changes in work processes, the working environment, new technology, and job content. This thus provides a legal right over matters that affect role empowerment. Finally, the weakest right is the right to information on financial affairs of the firm, and planned changes that may significantly disadvantage employees.

Works councils have a status and function that is distinct from the trade unions. All workers, and not just trade union members, can vote in works council elections, both to establish the works council and choose representatives. Representatives are not permitted to strike, and their role is 'to represent workers' interests while acknowledging the interests of the firm' (Frege, 2002, p. 223). This conventionally is seen as orientating the works council towards a cooperative partnership with management, as opposed to the more antagonistic competitive approach traditionally associated with trade unionism.

Viewed in relationship to the trade union, works councils are presented as the second element of the dual system of representation that was introduced in the early years of the Weimar Republic. Collective bargaining, which was traditional at the sectoral or regional level, was conducted by unions and concentrated on quantifiable matters such as wages and hours of work. In contrast the works council represents workers at the workplace. This dual system is widely seen as enabling the separation of conflicts of a distributional nature (e.g., the determination of wages) to be settled independently of issues of a more integrative nature (e.g., concerning efficiency and work practices).

Nonetheless, there is a 'relationship of mutual dependence' (Jacobi et al., 1998, p. 212) between the unions and works councils. This has four aspects. First, many works council members are also active trade unionists (estimated to be around 75%, see Niedenhoff and Pege, 1989; though this is lower in the newer industries). Indeed, in many cases, members are mandated by the union. Thus they can bring union issues to works councils, and in turn works council concerns can affect sectoral and regional bargaining. Second, the union supplies the works council with information and expertise (e.g., through education provision). Third, members of works councils often act as agents for the union at the workplace, their role in recruiting union members

being especially significant. Fourth, while works councils formally cannot negotiate wages, their power, particularly in large firms, means that in practice some are able to achieve wage premiums.

Works Councils and Performance: The Arguments

In theory, the dual structure of industrial relations in Germany separates issues of distribution from integration. This should both minimize the negative wage effects of the monopoly side of unions and maximize the positive benefits of employee voice, the latter being provided largely through the works council. The coverage of collective bargaining settlements extends to all employees and hence there is no tendency for the wages of non-union members to differ from union members. Moreover, differential treatment of union and non-union members is ruled out constitutionally. The works council can have the positive effects on the performance of the firm that the union is assumed to have in Freeman and Medoff's (1984) voice–exit theory (e.g., by reducing labour turnover and its associated costs). Additionally, works councils are oriented towards the survival of the firm and thus are likely to be largely supportive of its long-term objectives. As Fitzoy and Kraft (1987) argue, 'if a significant efficiency–voice effect is anywhere plausible, then it is surely in the practice of the works council . . . in West Germany' (p. 494).

Nonetheless, the bargaining over wages that works councils can in practice enter into may have adverse effects on profits by increasing wages over and above the competitive rate, or by delaying decisions. Also, while the works council's and management's interest may coincide, they are distinct, and thus at times the works council's policies may conflict with those of management. For example the works council's support for recruitment of friends and relatives of employees, or people that will fit in with the culture of the workplace (Windolf, Wood, Horn, & Manwaring, 1988), may come into conflict with a management concerned to develop new ways of working and seeking a more creative and innovative workforce. In such ways the works council may well have some of the negative effects on performance that are associated with the restrictive side of trade unions. Moreover, works councils are not all alike. Kotthoff (cited in Frege, 2002) outlines a typology that ranges from works councils that are ignored or isolated to ones that are class conflictual. Between these two extremes are various types of influential and cooperative works councils. Thus, as for trade unions, predicting the overall effect of works councils on performance is not straightforward.

Works Councils and Performance: The Evidence

Studies of the relationship of works councils with organizational performance are analogous to those conducted on trade unions, but less numerous. A

major problem for researchers is that as the size of firms increases there are barely any firms without work councils to act as comparators. In a recent review of the literature Addison, Schnabel, and Wagner (2004) categorize the studies in three phases, based primarily on the type of data sets used. In effect the studies have been improving in terms of their ability to overcome the problem of the size–works council relationship. Phase one studies are characterized by small samples of firms using cross-sectional analysis. Phase two involves regional and industry-specific studies. Phase three is characterized by the use of truly representative data for the German economy as a whole. A variety of outcome measures have been deployed, and not all studies include productivity and/or profits as an outcome.

Phase one studies reveal a picture at odds with theory, in that works councils tend to be associated with reduced productivity (Fitzoy & Kraft, 1987) and profitability (e.g., Addison & Wagner, 1997). Phase two studies, however, present almost the opposite picture. Addison, Schnobel, and Wagner (2001) and Huebler and Jirjahn (2001) both report a positive association between the presence of works councils and productivity. However, in the case of Addison, Schnabel, and Wagner (2001), the effect does not exist for smaller establishments between 21 and 100 employees. Huebler and Jirjahn, moreover, found that the effect only existed where the workplace was covered by a collective agreement. The existence of a works council was associated with higher wages but had no impact on the overall profitability.

Phase three results are conflicting. On the one hand, Frick (2001, 2002) and Wolf and Zwick (2002) produce results that suggest that works councils have a beneficial effect on productivity. On the other hand, Schank, Schnabel, and Wagner (2002) and Addison, Bellman, Schnabel, and Wagner (2004) find no effects. These last two are in many ways the most sophisticated studies to date as the former concentrates on plants having between 21 and 100 employees with a panel data from 1993–2000, and the latter uses a formal matching model to compare establishments which experienced the formation of a works council during that period with those without a works council throughout.

Overview

It is evident that the effect of works councils on firm performance remains unclear. The difference between the first and subsequent phases could reflect a change in the relationship over time. Such a time effect might reflect, for example, the virtuous circle Rogers and Streeck (1994) highlight, whereby as works councils mature the level of trust between management and the works council increases and their positive effect grows accordingly. Alternatively the change may result from a reduction in the power of works councils with the increased international competition that the German economy has faced. But it may equally reflect methodological factors. Further, likely

complicating factors are that the effect of works councils on performance are not necessarily the same across all sizes of firms, nor are they unaffected by the power of the union. In addition, as Addison, Schnabel et al. (2004) suggest, the relationship may be affected by other employee involvement and empowerment practices. These may be not unrelated to the presence of works councils, which can encourage some practices (e.g., communication) and discourage others (e.g., performance related pay). The fundamental problem, as with the studies of trade unions, is that the level of analysis is so general that it ignores a range of potentially important variables likely to affect the results. Future research needs to take account of different features and types of works councils, including the nature of their relationship with trade unions. Simultaneously, there is a need for increased methodological sophistication, with recent moves towards longitudinal studies examining change (i.e., the adoption of works councils) to be encouraged.

EMBEDDED EMPOWERMENT

The term embedded empowerment denotes general management practices or initiatives within which role and organizational empowerment practices are the key, but not the sole, components. The most prominent current example of embedded empowerment, on which we focus here, is that of HRM.

Empowerment within HRM

HRM is a term used to reflect a holistic or systemic approach to personnel management that embraces the full range of activities concerned with the recruitment, development, motivation, and management of employees. It includes, for example, personnel selection, training, communication, appraisal, career development, performance monitoring, and payment systems, as well as role (e.g., job design) and organizational (e.g., participation) empowerment practices. The systemic approach entails characterizing the HRM system, and thus adopting an organizational level of analysis.

Although, in principle, empowerment within HRM is no more prominent than other aspects, in practice it is assigned a special and central role. Wood and Wall (2002) identify two key assumptions driving contemporary work on HRM. The first is that HRM systems are most usefully characterized in terms of their departure from the traditional Tayloristic style (see also Wood, 1999). That tradition emphasizes maximizing control over employees through narrow and tightly specified jobs supported by task-focused selection, training, and payment systems. The contrasting approach is one emphasizing the involvement of employees by: investment in training and development more generally, rather than for immediate needs; ensuring good communications up and down the organization, rather than limiting

information on a need-to-know basis; and empowering employees through job enrichment, self-managing teams, and participation.

Much of the theoretical justification for this approach to characterizing HRM systems is based on research on role and organizational empowerment, which are seen as harnessing employees' energies and commitment towards organizational goals. Benson and Lawler (2003), for example, argue that 'From its beginnings in "industrial democracy" and "participative management", employee involvement has evolved into an integrated approach to work system design that supports employees having decision-making authority' (p. 156). Reflecting this perspective, authors have coined a variety of terms to denote this form of HRM, such as high involvement (Lawler, 1986), high commitment (Walton, 1985), progressive (Ichniowski, 1990), innovative (MacDuffie, 1995), human capital enhancing (Youndt, Snell, Dean, & LePak, 1996), and high performance (Lawler, Mohrman, & Ledford, 1995, 1998) management. We shall eschew such terms because they all prejudge the mechanisms or outcomes of HRM, which as we will show, have yet to be convincingly established. We retain the more neutral term HRM.

The second, though not universally shared, assumption is that HRM practices are mutually reinforcing. For example, teamworking without good communications, or empowerment without wider investment in training and development, is expected to be of limited value. Bailey (1993) argued that a strategy designed to empower employees needed three elements: (a) the opportunity for employees to participate in substantive decisions through the way work is organized; (b) employees with the skills to make their effort meaningful; and (c) employees with the appropriate motivation to put forth discretionary effort (see also Appelbaum, Bailey, Berg, & Kalleberg, 2000). The basic assumption is that there are synergistic relationships among the practices, with empowerment at the heart, with the whole being greater than the sum of the parts.

HRM and Organizational Performance: The Evidence

Since 1990 more than twenty empirical studies have been published that examine the performance effects of alternative HRM systems, contrasting those that emphasize empowerment with those that do not. We will illustrate the typical approach by describing two contrasting early studies.

Arthur (1994) collected information on HRM practices from a sample of 30 US mini steel mills using a questionnaire completed by human resource managers. The questionnaire covered such factors as: decentralization (e.g., the degree to which non-supervisory employees monitor quality, costs, and scrap), participation (e.g., the percentage of employees who meet on a regular basis to discuss problems, and are involved in union–management or employee–management committees), general training (e.g., skills training

not related to the employee's current job, in communications and problem-solving), and a number of other more specific features such as overall skill levels, wage rates, and benefits. On the basis of this information, the mills were categorized as having either control ($n = 16$) or commitment ($n = 14$) HRM approaches. The commitment approach was characterized, for example, by greater decentralization, more general training, higher skill level, and lower bonus-related pay. Analyses of performance over the previous year showed the mills with commitment human resource systems had greater productivity, lower scrap rates, and lower labour turnover.

In contrast to Arthur's small company, small sample, and industry-specific study, Huselid (1995) examined the link between HRM practices and performance in a heterogeneous sample of 968 larger US companies (over 100 employees, mean number of employees greater than 4,000). The focus was on work practices labelled as 'high performance', which were taken to include 'comprehensive employee selection and recruitment procedures, incentive compensation and performance management systems, and extensive employee involvement and training' (p. 635). Within that specification, emphasis was placed on role empowerment in the form of practices that 'encourage participation among employees and allow them to improve how their jobs are performed' (p. 636). Work practices were measured by questionnaires completed by senior human resources professionals. Factor analysis was used to identify two scales. One was labelled 'employee skills and organizational structures' and comprised items covering such areas as the proportion of employees included in formal information sharing, whose jobs were subjected to job analysis, who completed attitude surveys, who participated in quality circles or labour-management teams, and who were covered by incentive plans. The shorter 'employee motivation' scale encompassed performance appraisal, performance-related pay, merit-related promotion, and the number of qualified applicants for key vacancies. The relationship between the labels and the content of the two scales is not totally transparent. Scores on the two scales were then correlated with financial measures of productivity (sales per employee), market value (Tobin's Q), and gross rate of return on assets (GRATE), obtained from publicly available records. Findings showed that the employee motivation scale was associated with productivity; the employee skills and organizational structures measure was related to return on assets; and both scales were linked to market value.

On the positive side, Arthur's and Huselid's studies support the view that empowerment-oriented HRM systems are related to organizational performance. At the same time, however, they have important limitations. Although in Arthur's study the centrality of the empowerment element within the overall measure is relatively clear, within Huselid's it is not so transparent. Developing this theme concerning the correspondence between concept and measurement, in both cases it is unclear whether the effects observed can be

attributed to the totality of the HRM system or perhaps due to certain components of it rather than others. Moreover, the HRM measures used are quite different. Their validity is also unknown, as they are based on reports from a single representative of each organization who may, or may not, have detailed knowledge of the full range of practices covered. Likewise, in Arthur's study, the measure of performance was as reported by the same respondent who provided the information on practices, thus it is of unknown validity and open to the possibility of yielding associations with the HRM measure because of response biases. Finally, both studies are cross-sectional, and thus do not eliminate the possibility that better performance leads to greater investment in HRM practices rather than vice versa.

That these problems apply more generally is shown in Table 1.1, which offers an analysis of the main features of 18 of the principal empirical studies in the field. Columns 1 and 2 identify the study by author and the basic nature of the sample used. Column 3 describes the approach to measuring HRM practices, with 'reported' in the body of the table encompassing questionnaire, telephone survey, or face-to-face interview methods. For the performance measure in column 4 we concentrate on indicators of economic performance, which across studies, embrace such indices as productivity, return on assets, return on capital, return on equity, profit, and general measures of performance relative to competitors. The use of 'objective' in the body of the table signifies the data were obtained from publicly available audited accounts, whereas 'reported' denotes performance rated by the respondent. We exclude from the analysis non-financial performance indicators such as labour turnover and quality.

Under study design, in the fifth column of Table 1.1, 'cross-sectional' indicates single concurrent measures of HRM and performance (with performance typically being for the previous financial period). 'Quasi-longitudinal' applies to studies taking a single measurement of HRM practices and examines how this relates to subsequent performance having controlled for previous performance. 'Longitudinal' is used for studies in which change in HRM is related to change in performance. Under synergy test (column 6) the entry is for conventional statistical tests for interactions (e.g., using cross-product terms within regression) between two or more components of HRM (e.g., investment in training and job enrichment). It does not cover other interactions of wider theoretical interest, such as those between HRM and company strategy or capitalization. Finally, under performance effect (column 7) 'yes' signifies a statistically significant relationship between HRM practices and any one performance indicator, but does not necessarily indicate results are consistent across the two or three outcome measures typically used.

The entries in Table 1.1 describe the main thrust of studies involved, but cannot represent the more complex findings and nuances therein. Indeed, there is much to commend in the individual studies included, as well as in

Table 1.1 Features of empirical studies on HRM and performance.

Study	Sample	HRM measure	Performance measure	Study design	Synergy test	Performance effect
Arthur (1994)	30 mini steel mills	Reported, single-source	Same source, reported	Cross-sectional	No	Yes
Guest and Hoque (1994)	119 manufacturers	Reported, single-source	Same source, reported	Cross-sectional	No	No
Huselid (1995)	968 US companies	Reported, single-source	Objective	Cross-sectional	Partial	Yes
MacDuffie (1995)	62 car plants	Reported, single-source	Objective	Cross-sectional	No	Yes
Delaney and Huselid (1996)	590 for profit and non-profit firms	Reported, single-source	Same source, reported	Cross-sectional	Yes (none found)	Yes
Delery and Doty (1996)	216 banks	Reported, single-source	Objective	Cross-sectional	No	Yes
Koch and McGrath (1996)	319 business units	Reported, single-source	Objective	Cross-sectional	No	Yes
Youndt et al. (1996)	97 manufacturers	Reported, single-source	Same source, reported	Cross-sectional	No	Yes
Huselid, Jackson, and Schuler (1997)	293 firms	Reported, single-source	Objective	Quasi-longitudinal	No	Yes
Ichniowski, Shaw, and Prennushi (1997)	36 steel lines	Reported and observed, multi-source	Objective	Cross-sectional and longitudinal	No	Yes
Wood and de Menezes (1998)	1693 workplaces	Reported, single-source	Same source, reported	Cross-sectional	No	No
Hoque (1999)	209 hotels	Reported, single-source	Same source, reported	Cross-sectional	No	Yes
Vandenberg, Richardson, and Eastman (1999)	49 life insurers	Reported, single-source	Objective	Cross-sectional	No	Yes
Wright, McCormick, Sherman, and McMahan (1999)	36 refineries	Reported, single source	Same source, reported	Cross-sectional	Yes (positive effect)	No
Capelli and Neumark (2001)	666 manufacturers	Reported, single-source	Same source, reported	Longitudinal	Yes (none found)	No
Guthrie (2001)	164 firms	Reported, single-source	Same source, reported	Cross-sectional	No	Yes
Orlando and Johnson (2001)	73 banks	Reported, single-source	Objective	Cross-sectional	No	No
Guest, Michie, Conway, and Sheehan (2003)	366 firms	Reported, single-source	Objective	Quasi-longitudinal	No	No

other empirical contributions not listed for reasons of space constraints (e.g., Appelbaum et al., 2000; Ichniowski, 1990; Way, 2002). Considered collectively, however, this body of evidence has clear limitations, so caution should be exercised in reaching any strong conclusion about the existence and general applicability of an effect of HRM on performance.

A feature of the studies is that they have been conducted predominantly on manufacturing or financial organizations (column 2) and little is known about their generalizability to other sectors. The most obvious weakness, however, is the measurement of HRM. As evident from column 3 of Table 1.1, with only one exception (Ichniowski et al., 1997), investigators have relied on reports from a single organizational source to characterize HRM. Such reports may be quite accurate for some practices, such as whether or not there is a pay incentive scheme, but for others, like job enrichment or teamwork, they are likely to be less so. What appears to be teamwork to a senior manager, for example, may be less evidently collaborative to those supposedly working together. If such measures do include random error, then their relationship with performance will be underestimated.

In addition, in half of the studies, performance has also been measured through reports from respondents (column 4). Given that reported performance is often measured by ratings on items such as 'how does your performance compare with that of your main competitors?' there is plenty of scope for error, as a result, for example, of mis-recollection of actual financial data, or differing interpretations of what performance means. If random, such error would further weaken the observed relationship between HRM and performance. More troublesome, however, is the possibility of 'common-method response bias'. This is a risk in all studies using reported performance because the information on HRM has come from the same person. If some respondents take an overpositive view of their organizations, and others show the opposite tendency, then this factor alone will lead to a positive (but spurious) relationship between HRM and performance. At present, we simply cannot tell whether either of these measurement problems has significantly affected the results.

Research design (see column 5) is also a collective weakness. Fourteen of the 18 studies are solely cross-sectional, so the direction of causality between HRM and performance cannot be determined. Two studies are quasi-longitudinal (Huselid et al., 1997; Guest et al., 2003), in that they control for prior performance when examining the relationship between HRM and subsequent performance. This would seem to strengthen the basis for causal interpretation, in that any effect of prior performance on the use of HRM practices (e.g., higher profit leads to investment in training or selection) would be removed. However, as Guest et al. (2003) argue, it could also mask the effect of interest. If the practices actually measured had been fully operational for some time (say four years) before the period covered by the measure of prior performance (say two years), then they could already

have had their effect on performance. Thus controlling for prior performance would remove the very effect being sought. The basic problem is that no study measures the time of implementation of HRM practices, and this omission limits causal interpretation. A key point is that only two studies examine change in HRM and change in performance (Capelli & Neumark, 2001; Ichniowski et al., 1997). These yield contradictory performance findings (positive and negative respectively), but a sample of two is a scant base on which to draw conclusions.

Although theoretically the rationale is that the various components of HRM are mutually reinforcing, with empowerment at the core, this aspect has been neglected. Indeed, as shown in column 6 of Table 1.1, the hypothesis of interactions among HRM practices has only been directly addressed in 4 of the 18 studies, and with mixed results. No special emphasis has been placed on testing for interactions between the most direct measures of empowerment (e.g., job enrichment) and assumed supporting practices (e.g., selection and training). Correspondingly, and going beyond the evidence in Table 1.1, few studies have examined the more parsimonious possibility that just one or a few of the practices included within overall HRM measures might account for any observed results. More generally, the link between theory and practice within the studies is not strong. Although empowerment is a central component of most authors' conceptualization of performance enhancing HRM systems, this is not always so prominent within the measures used. Indeed, different authors, and even the same authors across different studies, use different measures of HRM, weakening the opportunity to synthesize findings.

A final point to note from Table 1.1 is that the findings for the relationship between HRM and performance (column 7) are mixed, with two-thirds of the studies revealing some evidence of an association, and one-third none at all. If those findings were systematically related to the other characteristics of the studies, for example more positive results for weaker research designs or only in studies using reported measures of performance, then there would be some basis for drawing conclusions—but they are not. Huselid's observation on his own study, that these 'results are not entirely unambiguous' (p. 662), applies to the field more generally.

Strengthening the Evidence Base

The above analysis, together with that offered by others (e.g., Wood, 1999; Wood & Wall, 2002; Wright & Gardner, 2003), leads to the conclusion that studies so far are not conclusive with regard to the link between HRM and performance. They provide encouraging evidence, but not a sound basis for causal inference; nor do they establish whether or not empowerment is a key ingredient.

For future studies there are four main priorities. The first, drawing on

traditional psychometric principles, is for multiple and independent ratings of HRM practices and systems to enhance the reliability and validity of the measurement of the independent variable(s). In particular, the use of experts external to the organization is to be encouraged, because they are more likely to know about the full range of possible development of relevant practices, and thus can provide more sensitive ratings than internal respondents with more restricted appreciation and vested interests.

The second priority is to improve the measurement of performance. Where possible, objective measures should be deployed. Of course these can also contain errors, as a result of such factors as the assumptions made about depreciation rates, or bringing forward planned expenditure in good years to offset tax or for cash-flow reasons (Smith, 1996). However, there are limits to how far objective measures can deviate from real performance, especially in the longer term, and they hold the advantage of being independent of measures of HRM. Where objective measurement is not feasible, for example where such data are not available for the chosen level of analysis (e.g., plant) or type of organization (e.g., certain charitable and service organizations), then attention should be paid to enhancing the reliability and validity of reported measures, which should be elicited from sources independent from those used to determine HRM practices. Ideally, both objective and reported measures of performance should be used, allowing greater breadth of coverage and triangulation between the two on aspects where they coincide.

The third requirement is for longitudinal studies, with repeated measures of HRM and performance, and in which the date of introduction of HRM practices is recorded. This will make it possible to relate known changes in HRM to subsequent changes in performance. Particularly desirable would be change studies investigating the long-term performance effects of major HRM initiatives.

The final priority is to strengthen the links of theory with measurement and analysis. There is a need to ensure that measures of HRM correspond to the driving theoretical position, and to examine whether supposed mechanisms (e.g., employee motivation, involvement, or commitment) account for any link with performance. Also of importance is to establish whether there are synergistic relationships among theoretically constituent HRM practices and if some practices are more salient than others, thus allowing more parsimonious explanations.

CONCLUSIONS AND FUTURE DIRECTIONS

We have taken a wide lens to the relationship between empowerment and performance, by spanning psychological, role, organizational, and embedded empowerment perspectives. There are two benefits of this approach. One is

to suggest new or largely neglected lines of inquiry concerning how the different perspectives on empowerment may inform one another. The other is to help identify generic issues for future research by revealing common methodological and theoretical limitations.

Linking the Empowerment Perspectives

Many essentially new lines of inquiry are suggested by considering the interplay between the different perspectives on empowerment. Though the development of psychological empowerment has its roots in role empowerment, and thus questions concerning their interrelationship have already been framed, that is not the case for the relationship of either of them with organizational or embedded empowerment.

In this respect a large number of questions arise, of which the following are a sample. Do employees with greater organizational empowerment through trade union representation or works councils experience greater psychological empowerment? Is such psychological empowerment limited to those who are representatives, or does it extend to those whom they represent? Similarly, to what extent does embedded empowerment through HRM systems promote psychological empowerment? Is the promotion of psychological empowerment a necessary condition for other forms of empowerment to affect performance? Are the different forms of situational empowerment separate and distinct in their effects on psychological empowerment and performance, or are the benefits of one (say role empowerment) enhanced by the existence of the others (organizational and embedded empowerment)?

There is no need to extend the list of questions further. The essential point is that, while research has been conducted largely within the separate domains of psychological, role, organizational, and embedded empowerment, there is much to be gained both methodologically and substantively by opening up those borders.

Methodological and Theoretical Issues

Four methodological and substantive issues stand out as common to research on empowerment. The first is the need for longitudinal change studies. The vast majority of empirical research has relied on cross-sectional designs, exclusively so in the case of psychological empowerment, and with only occasional exceptions for organizational and embedded empowerment. Even in the more established work on role empowerment, change studies are the exception rather than the rule. This over-reliance on cross-sectional evidence severely undermines causal interpretation. Future work should redress this imbalance, which is likely to require different strategies for the different empowerment perspectives. For psychological and role empowerment, where the focus is on individual or group performance

within organizations, deliberate intervention studies are feasible. In the case of organizational and embedded empowerment, greater reliance will have to be placed on exploiting naturally-occurring change, by comparing performance over time in organizations at different levels of development with respect to empowerment, and especially for those who adopt or shed organizational empowerment practices during the period of study.

The second issue concerns the need to improve measures of independent and dependent variables. One aspect of this problem is over-reliance on self-report, and often single-source, measures. This is especially evident for the independent variables in studies of HRM as a form of embedded empowerment, where there is a clear need for objective measures of the HRM practices, or at least ones based on multiple and independent respondents. This requirement applies equally to studies of psychological empowerment where, although there is no logical alternative to self-report and single-source measures of the focal construct, this makes it even more important that measure of antecedents and outcomes derive from objective or independent sources. Much of the research on role empowerment displays the same weakness. In many studies, this is compounded by the use of reported measures of performance as outcome variables. In the absence of such improvement in measures, observed relationships between empowerment and performance, and especially those derived from cross-sectional data, leaves open the interpretation that they result from response bias rather than representing substantive findings.

Research on organizational empowerment is to some extent free of this self-report measurement problem, because the approach has been to compare the performance of those organizations with and without relevant provisions (e.g., trade unions or works councils). This body of work, however, highlights a second measurement issue of wider relevance. This is the need to measure practices not simply in terms of their existence, but also in terms of their effective development. For instance, works councils in the case of organizational empowerment, HRM practices in the case of embedded empowerment, or self-managing work teams in the case of role empowerment, can all exist along a continuum from being notional or rudimentary to fully-fledged. It is not unreasonable to assume that how well they are developed will affect their impact on performance, or even that insufficient development could have a worse effect than no use at all.

The third general issue concerns the question of mechanism, that is, why and how empowerment affects performance. In the case of role empowerment, motivational mechanisms are traditionally assumed, and others have been recently proposed. For organizational empowerment various mechanisms are hypothesized to link unions or works councils to overall financial performance, including a union mark-up on wages and the provision for employee voice. Embedded empowerment through HRM practices assumes that performance gains arise by promoting organizational commitment,

employee involvement, skill, and competence. Finally, psychological empowerment can itself be seen as a possible mechanism through which the other forms of empowerment affect performance and indeed is fundamentally based on motivational assumptions. The important point about these mechanisms is that they have featured strongly as justifications for expecting a relationship between empowerment and performance empowerment, but rarely has their role been directly scrutinized. The emphasis of research has been on the effect of empowerment on performance, not on the extent to which alternative mechanisms account for any such effect observed. That deficiency requires redress, because explanation of why an effect occurs adds considerable weight to evidence showing that it does occur. Moreover, such identification of mechanisms provides insights into when effects are likely to be realized, which leads to the next point.

Our final issue concerns contingencies, that is the circumstances under which empowerment will have a lesser or greater effect on performance. A feature of research on all four forms of empowerment is the variability of findings. This strongly suggests the existence of third factors, or contingencies. Among the contingencies proposed are self-esteem in the case of psychological empowerment, production uncertainty for role empowerment (Wall et al., 2002), product market competition and labour–management relations in the case of the trade unions as a form of organizational empowerment, and organizational strategy for embedded empowerment in the form of HRM systems. As was the case for mechanisms, however, there have been too few systematic and concerted attempts to test these contingencies empirically.

Implementing the improvements recommended above to organizational and embedded empowerment, where the focus is with the effect on the performance of the enterprise as a whole, will require considerably greater research resource than has been characteristic of individual studies to date. Independent audits by multiple assessors, that provide detailed and differentiated measures of say trade unions or HRM systems, are that much more labour-intensive than simply recording the presence or absence of unions or determining the use of HRM practices by questionnaires to single organizational representatives. Longitudinal studies similarly require substantial research investment. If investigators take such requirements on board without increased resources the result will be fewer or smaller scale studies, and a consequent reduction in the accumulation of evidence. For this reason it is desirable to look beyond individual studies to large-scale collaborative ventures. Moreover, it is desirable to examine whether the relationship of organizational and embedded empowerment practices with performance differs by sector. It is possible, for example, that practices that are most effective within manufacturing companies differ from those that work for financial institutions or retailing organizations. Where individual studies are conducted such evidence arises largely by chance rather than by design.

Such considerations lead to the need for major national investigations, with repeated audits of practices in large samples of organizations in all major sectors, and with the resulting information integrated with existing national databases on their economic performance. Research to date has helped justify and set out the requirements for such 'big science', which would have the potential to provide much more definitive answers. Its realization would involve active collaboration between researchers, employer representative bodies, and government agencies.

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Chapter 2

25 YEARS OF TEAM EFFECTIVENESS IN ORGANIZATIONS: RESEARCH THEMES AND EMERGING NEEDS

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Technological advances, geopolitical stability, free trade agreements, and growing consumer wealth are fueling an online, real time, global service economy. The ongoing globalization can be conceptualized as much as a psychological phenomenon as an economic one, as illustrated by the shift in Chinese consumers' perceptions of the necessity, rather than luxury, of automobiles (Drucker, 2002). In fact, most global trends can be viewed through a social cognitive lens. For example, access to accurate, real time data underlying knowledge work has also driven information overload, fierce competition, and an accelerating rate of change to operating environments and learning requirements.

Individuals, organizations, and nations seeking to be adaptive and prosper under these circumstances are engaging in unprecedented levels of change. One of the most profound changes ongoing within organizations is the flattening of traditional, hierarchical structures in favor of teams and multi-team systems. Organizations have long acknowledged the value of teams in overcoming the challenges presented by chaotic context (Lewin, 1951). Thus, it is only natural that teams have become the norm for navigating complex environments (Belbin, 2000; Hackman & Morris, 1975). In fact, 80% of surveyed workers report they are currently members of at least one team and this estimate will continue to increase in step with evolving environmental complexities (Fiore, Salas, & Cannon-Bowers, 2001).

Teams are popular in part because coordinating the '... activities of individuals in large organizations is like building a sand castle using single grains of sand' (West, Borrill, & Unsworth, 1998, p. 6). The proliferation of teams,

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however, is far from the most important impetus for their study. History has repeatedly illustrated that effective teamwork is not the automatic result of just bringing team members together to accomplish interdependent tasks (Steiner, 1972). Failure to master an understanding of the factors that influence and are influenced by team effectiveness can result in catastrophe and chaos. Recent events include plane crashes (Simon, 1997), plant explosions (Cullen, 1990), and failed military engagements (Anderson & Sandza, 1987) that could have been prevented or contained had the participants to those events been able to overcome the debilitating effects of stress to act in an adaptive fashion.

Each of these unfortunate incidents underscore the importance of gaining a deeper understanding of team effectiveness. In essence, the question becomes one of how to turn a team of experts into an expert team (Salas, Cannon-Bowers, & Johnston, 1997). Those in pursuit of the answer to this question, thereby avoiding catastrophic failure and promoting synchronicity, have engaged in theory building, research, and practice, and in doing so have forged a science of teams. Not surprisingly these lines of investigation have taken many directions to exploring teamwork. Thus, there is an ongoing need to capture, codify, and report on these various efforts in order to achieve a shared representation of the state of art in regards to team effectiveness.

In light of the above, the purpose of this chapter is to highlight a set of different but interrelated themes of team effectiveness research. We distilled these themes from an analysis of several comprehensive team reviews that have been completed in the past 25 years (e.g., Bass, 1982; Campion, Medsker, & Higgs, 1993; Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995; Guzzo & Dickson, 1996; Ilgen, 1999; Kozlowski & Bell, 2002; Marks, Mathieu, & Zaccaro, 2001; Salas & Cannon-Bowers, 2000a; Sundstrom, McIntyre, Halfhill, & Richards, 2000). From these efforts, and many others, we advance twelve themes and seven needs that represent the 'tip of the spear' in the ongoing mapping of the complexities of work teams and the environments in which they are embedded. The proposed themes serve as an organizing framework for the first half of this chapter while the second half is organized around the advanced emerging needs. We hope our effort stirs debate, illuminates challenges, energizes new research, and serves as a resource to future reviews. Furthermore, it is our hope that the current chapter will also serve as a meaningful contribution to the science of teams by providing a 'shared mental model' of the current state of team effectiveness.

Team Effectiveness in Organizations—Where We're At

Theme 1: theories and frameworks of team effectiveness now abound

Beginning with the Hawthorne studies, and continuing for a century, efforts have been underway to determine the elements of team effectiveness.

Dozens of intriguing conceptualizations of team effectiveness have surfaced during the past three decades (e.g., Campion et al., 1993; Campion, Papper, & Medsker, 1996; Cannon-Bowers, Oser, & Flanagan, 1992; Cohen, Ledford, & Spreitzer, 1996; Fleishman & Zaccaro, 1992; Gersick, 1988; Gladstein, 1984; Hackman, 1983; Janz, Colquitt, & Noe, 1997; Marks et al., 2001; Morgan, Salas, & Glickman, 1993; Nieva, Fleishman, & Rieck, 1978; Salas, Dickinson, Converse, & Tannenbaum, 1992; Sundstrom, DeMeuse, & Futrell, 1990; Tannenbaum, Beard, & Salas, 1992). Each of these streams of research has contributed to the body of knowledge about teams by forging new paths in some areas and shifting the paradigm in others. The pace of teams research increased throughout the 1990s and continues to accelerate as we approach 2005. While there are dozens of models and frameworks which deserve exploration, space limits constrain this review to the contributions of two integrative frameworks of team effectiveness.

A programmatic initiative utilizing an input, process, output (IPO) structure to map the multifaceted factors impinging on teamwork was conducted by Salas and colleagues. These researchers reviewed existing IPO models of team effectiveness and developed an integrative framework (Tannenbaum et al., 1992) (see Figure 2.1). Tannenbaum et al. (1992) specified four types of input variables that not only relate to each other, but also relate to team processes that are argued to occur over time. This framework also proposes that team processes are related to performance outcomes, that in turn are recycled as input feedback to the team. This framework also illustrates that training may moderate the relationships between input to process, as well as from process to outcome. A final addition of this framework over previous models is the recognition that organizational and situational characteristics impinge upon team effectiveness, not only at the input stage, but throughout the entire IPO process.

A second programmatic effort that has made important contributions to understanding team effectiveness was advanced by Campion and colleagues. These researchers developed a 'meta' framework of team effectiveness that integrated and expanded upon the work of several prior team effectiveness models and frameworks (i.e., Gladstein, 1984; Guzzo & Shea, 1992; Hackman, 1987; Tannenbaum et al., 1992). Campion et al.'s (1993) team effectiveness framework incorporates five categories of variables proposed to relate to team effectiveness (i.e., job design, interdependence, composition, context, and process). Specifically, job design is proposed to subsume self-management, participation, task variety, task significance, and task identity. Interdependence is proposed to subsume task interdependence, goal interdependence, and interdependent feedback/rewards. Composition subsumes heterogeneity, flexibility, relative size, and preference for group work. Context subsumes training, managerial support, and communication/

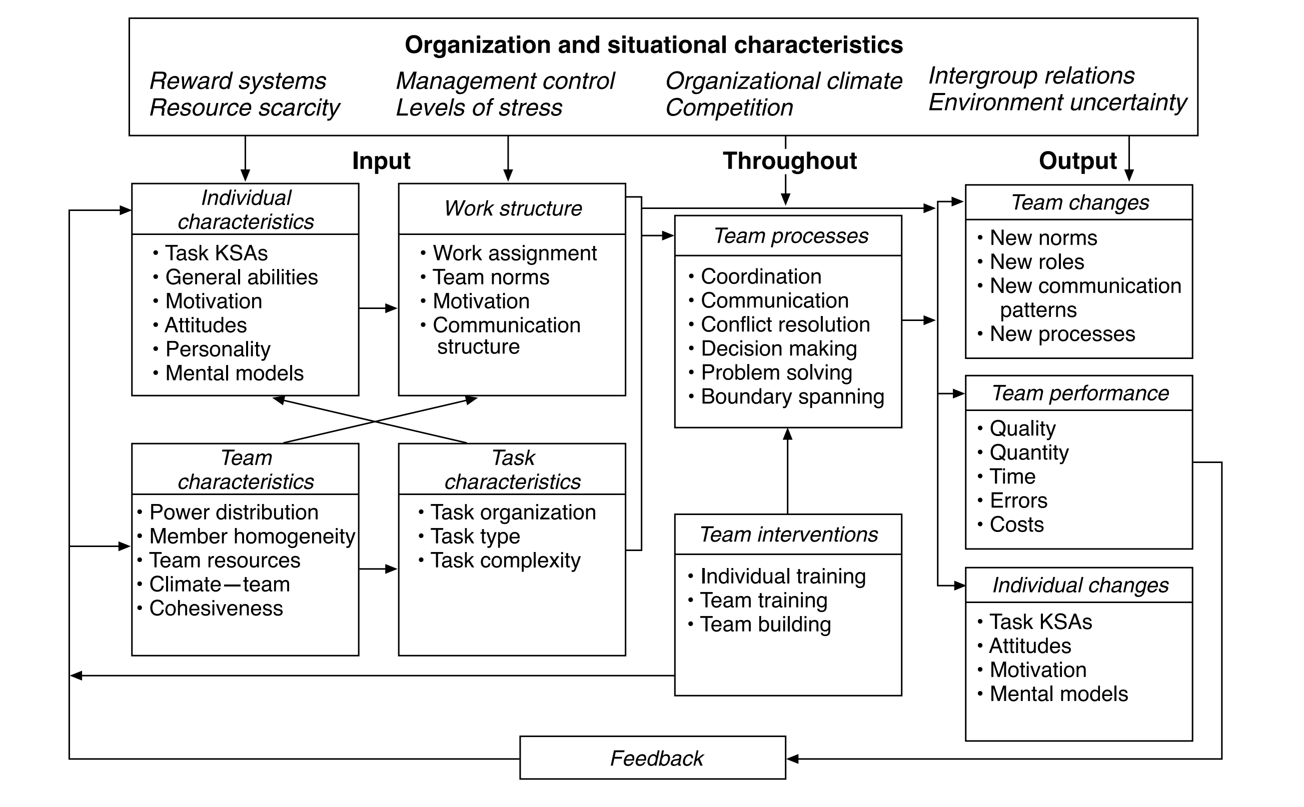


Figure 2.1 Team effectiveness framework
(KSA = knowledge, skill, and attitude)

cooperation between groups. Process subsumes potency, social support, workload sharing, and communication/cooperation within groups.

One of the strongest arguments for highlighting this framework is that it is one of only a handful that has received empirical support in 'context'. Campion et al. (1993) initially examined the framework with eighty non-exempt administrative teams within a large financial services company. Later, Campion et al. (1996) replicated this research in the same organization with sixty 'knowledge worker' teams. The results from these efforts support the importance of the proposed constructs in contributing to both team member satisfaction and team effectiveness. Additionally, the framework offers design guidelines for simultaneously enhancing team member satisfaction and team effectiveness. For example, team effectiveness can be enhanced by designing jobs with autonomy to increase team member motivation, engineering team member interdependencies, ensuring a supportive organizational climate and culture, guiding team processes, and facilitating team member development.

In summary, the models and frameworks reviewed above underscore the elusiveness, dynamism, and complexity of team effectiveness in organizations. All of these models and frameworks allude to the difficulty of describing and influencing team effectiveness as witnessed by the myriad of factors that are incorporated within each initiative. Perhaps the most important contribution of this accumulating body of research is the guidance that it affords to future endeavors seeking to advance the collective understanding about the science of teams.

Theme 2: many efforts have sought to classify and organize teams/groups

Taxonomic efforts are undertaken to define and classify objects or elements so as to infer broad statements about property classes and class interrelationships (Fleishman & Quaintance, 1984). The taxonomic development process consists of operationally defining constructs of concern, construct measurement, decisions regarding construct similarity, and accumulating process validity (Fleishman & Zaccaro, 1992). Taxonomic efforts seek to add structure to a diverse body of research by providing a common understanding of the primary constructs highlighted. Thus, these initiatives are essential for further defining the nomological net of team effectiveness and in designing interventions that target teams for improvement.

Within the past 25 years, there have been many taxonomic efforts to classify team phenomenon. Several of these taxonomies have classified the types of teams and groups typically found within work environments (e.g., Argote & McGrath, 1993; Cannon-Bowers et al., 1992; Cohen & Bailey, 1997; Devine, 2002; Devine, Clayton, Philips, Dunford, & Melner, 1999; Hackman, 1990; Mohrman, Cohen, & Mohrman, 1995; Sundstrom et al., 1990; Sundstrom et al., 2000). This review focuses on a few specific

taxonomic efforts that have made particularly important contributions to the science of teams.

Upon integrating a century of work team research and practice, Sundstrom et al. (2000) argued for six distinct types of teams (i.e., production, service, management, project, action/performance, and parallel). These teams can be distinguished by several factors including degree of differentiation (i.e., specialization and autonomy), integration (i.e., degree of integration/interaction with the larger system outside the team), and work cycles (i.e., length and novelty).

Recently, there has also been a concerted focus on identifying how various contextual variables distinguish team type. For example, Kozlowski, Gully, Nason, and Smith (1999) propose that teams can be distinguished on the basis of five characteristics including tasks, goals, roles, process emphasis, and performance demands. Building upon both Sundstrom et al. (2000) and Kozlowski et al. (1999), Kozlowski and Bell (2002) suggest teams can be distinguished on the basis of: (1) dynamics and coupling to external environments; (2) boundary spanning and permeability; (3) member diversity and distribution; (4) member and workflow interdependencies; and (5) temporal entrainments.

Most recently, Devine (2002) sought to integrate and further refine existing team type taxonomies by seeking to eliminate the confounding of attribute dimensions and superordinate team labels, devote more attention to those groups charged with day to day work operations, as well as those charged with intellectual work, and clarify critical contextual attributes that will highlight key differences in team effectiveness across team types. One product of Devine's research is a taxonomy consisting of fourteen team types differentiated by seven contextual variables (e.g., temporal duration, task structure, and hardware dependence).

The team typology research undertaken by Sundstrom, Kozlowski, Devine and colleagues has been influential in framing questions about team effectiveness. This point is especially salient in light of empirical results suggesting team type influences the importance of team effectiveness criteria (Cohen & Bailey, 1997). Thus, these team type frameworks will be a valuable resource for organizing team complexities, determining boundaries of team research result generalization, and guiding team training design and delivery. Research is needed to investigate the differences between these teams and how differences relate to team effectiveness (Devine, 2002; Kozlowski & Bell, 2002; Sundstrom et al., 2000).

Theme 3: the competencies required for teamwork have surfaced

Team performance requires team members to think, do, and feel (Salas & Cannon-Bowers, 2001). When team members think, do, and feel in a coordinated, adaptive manner individual inputs can synergize and collectively

contribute to team effectiveness. Team members must dynamically display critical knowledge (cognitions), skills (behaviors), and attitude (feelings) competencies while performing in fluid environments. Collectively, these knowledge, skill, and attitude (KSA) competencies comprise teamwork. In what follows, we highlight two programmatic efforts to define, label, and examine specific teamwork KSAs and illustrate sample principles of teamwork which they have produced.

One effort to illuminate the competencies supporting team effectiveness investigated the nature of teamwork in a field study with 100 combat information center (CIC) teams (Smith-Jentsch, Zeisig, Acton, & McPherson, 1998). From their research with CIC teams Smith-Jentsch and colleagues advanced a four component model which proposes teamwork is comprised of information, communication, supporting behavior, and team initiative/leadership. These four dimensions have demonstrable convergent and discriminant validity and have been found to differentiate amongst expert and novice teams (Smith-Jentsch et al., 1998).

Another initiative has also systematically examined the nature of the KSAs underlying effective and adaptive teamwork (Cannon-Bowers et al., 1995). This programmatic examination of teamwork was in part fueled by the wide variability in the number and nature of the team knowledge, skill, and attitude processes proposed by the various models and frameworks of team effectiveness. In fact, this investigation alone unearthed over 130 constructs proposed to impact team effectiveness. With hundreds of potential team processes to choose from, this state of affairs was analogous to the state of personality research before the emerging consensus about utilizing the five-factor model as a taxonomic structure to organize traits.

Salas, Cannon-Bowers, and colleagues imposed order onto chaos by suggesting that the multiple skill competencies underlying teamwork can be conceptualized as eight broad dimensions (Cannon-Bowers et al., 1995; Salas, Burke, & Cannon-Bowers, 2000). The eight skill competencies proposed to comprise teamwork are adaptability, shared situational awareness, performance monitoring/back-up behavior, team leadership, interpersonal relations, coordination, communication, and decision-making. Furthermore, recent efforts have continued this research by delineating a set of team knowledge competencies (Salas & Cannon-Bowers, 2000b). Finally, integrating the work of both Guzzo, Yost, Campbell, and Shea (1993) and Cannon-Bowers et al. (1995), Salas and Cannon-Bowers (2000b) advanced a list of seven attitudinal dimensions of teamwork.

The ongoing research seeking to distill the knowledge, skill, and attitude competencies underlying teamwork has served to provide team guidelines, tips, tools, and principles. The principles derived from systematic research play a central role in guiding future team research design and development. Furthermore, these principles can serve as a framework for guiding the design and delivery of instructional strategies that lie at the heart of team

training interventions. The next section examines a few of these principles in detail.

Theme 4: principles of teamwork have been delineated

Research investigating the KSAs underlying team effectiveness has been ongoing for nearly a century and in its modern form for over two decades. Although programmatic efforts to explore team effectiveness have taken a variety of paths, each of these initiatives has markedly contributed to the science of teams and teamwork. Fortunately, the results of many of these efforts have recently been translated into principles and guidelines of teamwork and team development (McIntyre & Salas, 1995; Salas et al., 2000; Salas, Burke, & Stagl, in press; Salas & Cannon-Bowers, 2000b). For example, research has repeatedly demonstrated that effective taskwork is a necessary but insufficient condition for team effectiveness, as teamwork KSAs must also be present (McIntyre & Salas, 1995; Salas, Cannon-Bowers, Rhodenizer, & Bowers, 1999). In addition, research also suggests that teamwork is characterized by a set of adaptive KSAs, as is the case when team member expectations and behaviors are driven by shared, accurate and flexible knowledge structures (i.e., shared mental models).

The work of Salas, Cannon-Bowers, Smith-Jentsch, and colleagues has served to advance the science of teams by making the argument for clear, concise definitions and consistency in operationalization of teamwork variables. These systematic examinations of teamwork have contributed to the science of teams by advancing actionable principles to guide both team interventions and research. The principles and guidelines derived from these efforts are critical for guiding hypothesis generation, theory building, measure design, and criterion selection. Furthermore, these findings can be leveraged against to implement multiteam systems or in designing and delivering team training. In the next section, we examine the findings of innovative research that is moving beyond just delineating KSAs to examining how they dynamically interact and flow across time to create team performance. This line of thinking is supported by notions of the centrality of time to the effectiveness of open systems such as teams.

Theme 5: a focus on the fluidity of team process and performance

While initial attempts to describe teamwork primarily focused on inputs as a mechanism for manipulating outcomes, recent models and frameworks have served to illuminate the 'black box' of team process. This movement reflects a growing recognition within the team community that collective task performance requires moment to moment interteam and intrateam interaction. The focus of these recent initiatives has been on describing the dynamic interrelationships between team processes over time (Dickinson & McIntyre,

1997; Fleishman & Zaccaro, 1992; Marks et al., 2001; Shiflett, Eisner, Price, & Schemmer, 1985).

Time is a central factor in team member, team, and organizational maturation, process, and effectiveness (Ancona, 1987; Ancona & Chong, 1999; Eitzen & Yetman, 1972; Gersick, 1988; Hackman, 1992; Hambrick & Fukutomi, 1991; Hulin, Henry, & Noon, 1990; Kozlowski et al., 1999; Kozlowski, Gully, Salas, & Cannon-Bowers, 1996; Landis, 2001; McGrath, 1990, 1991, 1997; McGrath & Gruenfeld, 1993; McGrath & O'Connor, 1996; Montoya-Weiss, Massey, & Song, 2001; Morgan et al., 1993; Schein, 1992; Sheard & Kakabadse, 2002; Shiflett, 1979; Sivasubramaniam, Murry, Avolio, & Jung, 2002; West et al., 1998). In fact, Ancona and Chong (1999) assert that the key to understanding team behavior lies within shifting the focus from internal factors such as midpoints to examining the temporal role of context. This line of thought is supported by a branch of mathematics known as coupled oscillations which proposes that team member behavior becomes entrained to naturally occurring cycles in the team's context. An example of entrainment is the recurring flurry of goal directed activity which takes place within a sales team as the fiscal year ends. As the sales team's cycles becomes entrained to seasonal business cycles, the environment serves as a pacer, rhythm setter, opportunity creator, source of interrupts, and context for the meaning of time.

A few recent models and frameworks of team process are intertwined with time. An example of this recent advancement is illustrated by Dickinson and McIntyre's (1997) model which exclusively focuses on the dynamic interrelationships between essential teamwork processes such as: communication, team orientation, team leadership, monitoring, feedback, backup and coordination. Within this model, communication acts as the glue which links together all of the other teamwork processes. Another aspect of the model is the integration of both team skill competencies (e.g., team leadership) and team attitude competencies (e.g., team orientation). Team leadership and orientation facilitate a team member's capability to monitor and support teammates. Furthermore, performance monitoring drives both the content of feedback and the engagement in timely back-up behaviors. The model also asserts that when all of the aforementioned teamwork competencies are occurring in unison they synergistically serve as a platform for team coordination. This initiative incorporates many of the skill competencies underlying teamwork; however, it fails to model critical antecedents and outcomes of process.

Marks et al. (2001) provide another example of research which has markedly advanced understanding about the fluid, time driven nature of teamwork. This effort extends recent notions of team process by categorizing throughputs into recurring phases. Marks and colleagues propose an episodic model of team process that consists of a series of recursive IPO loops occurring sequentially and simultaneously during both a transition and

action stage of performance. Furthermore, the authors propose that interpersonal processes occur during both of these stages. In addition to raising a number of directions for future research, this research has important implications for human resource strategy. For example, if particular processes are more important then others at specific phases of teamwork, then monitoring, training, appraisal, and feedback systems should be tailored to reflect contingencies which are likely to emerge.

Theme 6: infusions in teams of a 'cognitive kind'

The science of teams and teamwork is increasingly incorporating emerging notions from cognitive psychology (i.e., transactive memory and team learning). In addition, naturalistic decision-making, shared mental models theory, and metacognition/self-regulation have each markedly influenced current conceptualizations of how teams function in a coordinated, adaptive manner. Also, there have been many recent advances within the domains of cognitive engineering and cognitive psychology in terms of tools for knowledge elicitation and the measurement of knowledge structures. In what follows, we examine the growing contribution of cognitive psychology to the science of team performance and effectiveness.

Naturalistic Decision Making Much of what was known about team decision-making had been intuited from the tenets of classical decision-making theory (CDM) (Bernoulli, 1738). CDM traditionally has focused on laboratory-based theories of decision-making that often have no true analog in the 'real world'. The past decade, however, has witnessed a paradigm shift away from the subjective expected utilities spawned by the rational CDM model to illuminating the processes underlying how decisions are actually made in context (Klein, 1993; Cannon-Bowers & Salas, 1998). This shift is largely fuelled by research which suggests that experts who make decisions in naturalistic environments do not adhere to the rational model of decision-making (Klein, 1993, 1996; Lipshitz, Klein, Orasanu, & Salas, 2001; Salas & Klein, 2001).

Broadly labelled as naturalistic decision-making theory (NDM), this movement is concerned with the study of decision-making in real world settings where the decisions are embedded within the dynamic tasks and context. One decade-long systematic effort to address this issue was TADMUS (Tactical Decision-Making Under Stress) (Cannon-Bowers & Salas, 1998). TADMUS researchers utilized the tenets of NDM (i.e., heuristics, feature matching, and recognition primed decision-making) and powerful tools such as cognitive task analysis and other knowledge elicitation techniques to determine the types of shared mental models and metacognitive processes related to effective team tactical decision-making. Important

products of this initiative include a set of training and design guidelines, training systems, performance measurement systems, and decision support systems to enhance decision-making in complex contexts (see Cannon-Bowers & Salas, 1998).

Shared Mental Models (SMM) One approach to building a theoretical rationale for team coordination and effectiveness has focused on shared cognition (e.g., Campbell & Kuncel, 2001; Cannon-Bowers, Salas, & Converse, 1993; Cooke, Salas, Cannon-Bowers, & Stout, 2000; Ensley & Pearce, 2001; Entin & Serfaty, 1999; Hinsz, Tindale, & Vollrath, 1997; Klimoski & Mohammad, 1994; Orasanu, 1990). This line of investigation is founded on the premise that team synchronicity can be achieved when team members develop clusters of shared and accurate instantiated knowledge structures (i.e., shared mental models). In fact, there is an accumulating body of evidence which suggests shared mental models serve to facilitate coordinated team action (e.g., Baker, Salas, Cannon-Bowers, & Spector, 1992; Blickensderfer, Cannon-Bowers, & Salas, 1998; Marks, Sabella, Burke, & Zaccaro, 2002; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Stout, Cannon-Bowers, Salas, & Milanovich, 1999).

Shared mental models are manifested in a variety of forms including equipment, task, team, team interaction, and problem/situation models. To some degree, each model influences both what team members perceive in their operating environments and how recognized cues are reacted upon (Senge, 1990). Essentially, team members operating from a SMM have a common conceptual framework which enables them to perceive, interpret, and respond to dynamic environments in a synchronized, adaptive fashion (Schlechter, Zaccaro, & Burke, 1998).

Metacognition Research investigating team members' higher order cognitive structures has focused on illuminating the role of metacognition (Cohen, Freeman, & Wolf, 1996; Kozlowski, 1998; Lord & Emrich, 2001; Sternberg, 1998; Zaccaro, 2001). While many definitions exist, metacognition can be conceptualized in terms of its executive roles as 'both an awareness of and ability to regulate one's own cognitive processes' (Banks, Bader, Fleming, Zaccaro, & Barber, 2001, p. 10). This definition acknowledges that metacognition and self-regulation are conceptually 'distinct processes operating at different levels of goal specificity but operating in concert' (Kozlowski, 1998, p. 119). Team members adaptively solve problems via their use of cognitive abilities and skills such as verbal reasoning, information processing, inductive reasoning, and deductive reasoning. Thus, metacognition can be conceptualized as the 'executive functions that control the application and operation of cognitive abilities and skills' (Zaccaro, 2001, p. 43).

Self-regulation is also a higher order cognitive skill set that influences team member performance. Following this line of thinking, Kozlowski and colleagues present an integrated model of training, self-regulation, and adaptive performance (Kozlowski, Toney, Weissbein, Mullins, Brown, & Bell, 1998). In this model, the self-regulation system is trichotomized into the components of practice, self-monitoring/self-evaluation, and efficacy attributions. The self-regulation system is proposed to impact proximal training outcomes such as learning and performance as well as distal training outcomes such as adaptation and retention.

Metacognitive processing can also be manifested at the team level. In fact, it has been asserted that 'at the team level, metacognitive and self-regulatory processes must extend beyond the self' (Kozlowski, 1998, p. 120). This line of research suggests that teams can become self learning, adaptive systems when they have developed metacognitive skills at the team level. These assertions are further supported by the notion that leaders who can facilitate collective team member metacognition will serve to contribute to higher levels of team performance (Kozlowski, 1998; Tannenbaum, Smith-Jentsch, & Behson, 1998).

Accumulating research findings suggest that team member metacognition can be accurately measured and obtained scores are related to important team outcomes. For example, research has been undertaken to develop and collect validity evidence in support of an online metacognitive skills assessment battery (Marshall-Mies, Fleishman, Martin, Zaccaro, Baughman, & McGee, 2000). The results of this effort suggest metacognitive scores are a valid predictor of overall leader performance. In addition, evidence suggests leader metacognition promotes adaptive team performance (Marsh, Kiechel, Boyce, & Zaccaro, 2001). Furthermore, research results also indicate that leader metacognitive skill interacts with work experiences to predict the development of both tacit knowledge and social competencies (Banks et al., 2001). Research evidence also suggests that metacognitive coherence explains unique variance in adaptability even after controlling for training strategies, ability level, learning dispositions, declarative knowledge, and final training performance (Kozlowski, Gully, Smith, Nason, & Brown, 1995).

In summary, advances in cognitive psychology have vastly expanded the science of teams and teamwork (Cannon-Bowers & Salas, 2001). The notions of naturalistic decision-making, shared mental models, and metacognition/self-regulation continue to hold great promise for advancing our current understanding of team effectiveness. Researchers should undertake an exploration to specify the dynamic interrelationships between these constructs. Specifically, findings emerging from the shared mental models and metacognitive literature should continue to be leveraged against to determine how teams member's cognitive frameworks guide team decision-making. For example, multidisciplinary efforts are underway to investigate how shared cognition (e.g., situation assessment, metacognition, and mental models)

serves to mediate the relationships between both environmental stressors (e.g., time, workload, and ambiguity) and team processes (e.g., back-up behavior, and decision-making) as well as between team processes and team outcomes (e.g., adaptability) (Burke, Milham, Salas, Bowers, & Fowlkes, 2002).

Theme 7: the centrality of methodological issues

An analysis of the teams literature suggests there is growing awareness of the importance of methodological issues in maximizing the probability of successful team research and team interventions. Although many topics are actively being investigated, in this section we examine three issues which deserve closer scrutiny (e.g., performance measurement, multilevel analysis and survey-based research). Taken together, these areas are central to systematically designing, implementing, and evaluating team research and practice.

Performance Measurement Performance measurement can be conceptualized as a purchase of information that team researchers make in order to help guide their decision-making (Brannick & Prince, 1997). Constructing team measures is a process that should be guided by a number of considerations including the measurement purpose, included stimuli, targeted competencies, nature of stimuli, measurement timing, and cost concerns (McIntyre & Salas, 1995). Team performance measures can focus on any section of the team effectiveness input, process, and outcome system. However, capturing diagnostic information requires measuring team process in addition to team outcomes. Regardless of the focus of a particular measure it should always be operationalized from a construct that is relatively free of contamination and deficiency. In fact, accurate performance measurement is essential for advancing teamwork theory, providing content for training feedback systems, and in the evaluation of training interventions (Baker & Salas, 1997).

Several recent initiatives have investigated the issues inherent to team performance measurement (Brannick, Roach, & Salas, 1993; Brannick, Salas, & Prince, 1997; Prince, Brannick, Prince, & Salas, 1997). For example, Dickinson and McIntyre (1997) advanced a conceptual framework to guide the development of teamwork measures. Another effort focused on teamwork in developmental interventions by proposing a framework for developing team performance measures in training (Cannon-Bowers & Salas, 1997). A third thrust drew on cognitive psychology to illuminate the nomological network of team shared mental models as a means for developing proxy measures of cognitive level team performance (e.g., measures of knowledge structures and shared expectations) (Kraiger & Wenzel, 1997). One cutting-edge effort to examine team performance focused on developing

structured measures of team performance in distributed environments (Dwyer, Fowlkes, Oser, Salas, & Lane, 1997). This research highlights the importance of the Targeted Acceptable Responses to Generated Events or Tasks (TARGETs) methodology for measuring distributed team performance during distributed team training. In addition, a number of statistical advances have been made that can be called upon to model the dynamic nature of team performance (Day & Lance, in press; Weingart, 1997). Many of the findings from these various research initiatives have been translated into guidelines of performance measurement (Salas & Cannon-Bowers, 2000b).

Multilevel Analysis Multilevel analysis is essential to the study of teams because teamwork occurs at multiple levels in the conceptual space (McIntyre & Salas, 1995; Roberts, Hulin, & Rousseau, 1978; Simon, 1973). In this fashion, individuals, teams, and organizations are nested and intertwined within multilevel open systems (Katz & Kahn, 1978; Kozlowski & Bell, 2002). For example, effective team performance can be enabled via both the actions of team members operating individually and as a collective. Thus, measuring team performance requires assessing both individual and group-level affects (Tesluk, Mathieu, Zaccaro, & Marks, 1997).

Research utilizing multilevel analysis is characterized by an alignment in the levels of specified constructs, theory, measurement, analysis, and generalization (Hollenbeck, Ilgen, Sego, & Hedlund, 1995; Kozlowski & Klein, 2000; Kozlowski & Salas, 1997). For example, Tesluk et al. (1997) advanced a set of theoretical and empirical conditions to justify aggregating data measured at the individual level to the team level. These propositions state that there should be a theoretical rationale, measures which reflect team properties, validity evidence collected at the team level, and adequate levels of within-group agreement, to justify aggregating individual level data to higher levels (i.e., team, organization, and nation).

Classifying activities in regards to their appropriate level of analysis is particularly important to designing instructional strategies that specifically target individual or team-level KSAs (Brannick & Prince, 1997). Similarly, research has taken a multilevel perspective to framing transfer of training issues (Kozlowski, Brown, Weissbein, Cannon-Bowers, & Salas, 2000). For example, Kozlowski et al. (2000, p. 159) state that there is a '... levels gap between theoretical models of training needs assessment, design, and evaluation, on the one hand, and, on the other, the higher levels at which training must have an impact if it is to contribute to organizational effectiveness.' By distinguishing between the traditionally emphasized notion of horizontal transfer and the more recent notion of vertical transfer, these researchers advanced a multilevel model for resolving the 'levels paradox' associated

with the transfer of KSAs developed by team members in training to their performance environments.

Survey Based Research The growing body of team research will largely be judged by the quality of its performance measurement techniques. This notion is rather alarming because a majority of past and ongoing team research is survey-based. In fact, some have suggested that 'administering a well-designed survey is the best way to answer the deceptively simple question, "How are we doing?"' (Hallam & Campbell, 1997, p. 156).

In contrast, other researchers have stated that 'What you see may not be what you get' suggesting that the 'single snapshot' afforded by surveys may be insufficient for capturing the dynamic nature of teamwork (Baker & Salas, 1992, 1997; Ruel, 2000; Salas & Cannon-Bowers, 2000b). In order to account for both the long-term maturational forces and moment to moment dynamism inherent to teamwork, team process should be sampled and measured over a variety of conditions and occasions.

In summary, methodological issues are receiving increasing attention in the arena of team research. The topics reviewed in this section, performance measurement, multilevel analysis, and survey-based research, each play a central role in contributing to our understanding of the science of teams and teamwork. For example, the issues outlined by Tesluk et al. (1997) are essential for guiding performance measurement in teams. In addition, aggregating individual phenomenon to the team level and other such generalizations require systematic multilevel theory (Kozlowski & Klein, 2000). Furthermore, Kozlowski et al.'s (2000) research illuminates how training delivered to individual team members vertically transfers to impact critical team and organizational outcomes. This is imperative to gaining a deeper understanding of the organizational value of training interventions. These research endeavors have yielded a suite of tools and strategies for measuring team processes (e.g., observational scales, critical incidents, and content analysis) and team outcomes (e.g., rating scales, team error analysis, and archival data).

Theme 8: resurgence of research utilizing microsimulations

The US government and many industries in the private sector are actively utilizing high and low fidelity simulations to assess and train teamwork (e.g., Baker, Prince, Shrestha, Oser, & Salas, 1993; Bowers, Salas, Prince & Brannick, 1992; Brannick, Prince, Prince, & Salas, 1995; Dwyer, Oser, Salas, & Fowlkes, 1999; Jentsch & Bowers, 1998). The findings from this research suggest that the physical fidelity of the simulator environment is of secondary concern to psychological reality or fidelity (Marks, 2000). Simulators should serve to trigger psychological processes similar to those experienced in actual operational environments. Therefore, simulation

fidelity should attempt to approximate the level of complexity typically experienced by teams during routine and novel performance. Thus, low fidelity PC-based simulators which use written or verbal prompts may be cost-effective solutions for researchers and organizations seeking to capitalize on simulation capabilities (Brannick, Prince, Salas, & Stout, in press).

There is an accumulating body of research utilizing low fidelity simulators to develop a science of team decision-making (e.g., Hollenbeck, Colquitt, Ilgen, LePine, & Hedlund, 1998). This research utilizes the Team Interactive Decision Exercise for Teams Incorporating Distributed Expertise ($TIDE^2$) computer simulation. $TIDE^2$ is a PC-based decision–task simulation that requires the participant to make judgments on the characteristics of an object. The $TIDE^2$ simulator has been instrumental in (1) developing a dynamic model of decision risk, (2) assessing the boundary conditions of a multilevel model of decision-making, (3) examining the role of distributive expertise in decision-making, and (4) illuminating the relationships between team member personality and adaptive team performance. $TIDE^2$, and other similar simulators, are valuable tools for designing and developing instructional strategies. These training strategies and the simulators they sometimes utilize are addressed in the next section.

Theme 9: instructional strategies for team development have been validated

In Druckerian fashion, the business of those in business is training and developing people, because it is people who make the products and deliver the services which consumers purchase and in doing so support organizational viability. In other words, 'the people make the place' (Schneider, 1987). Recent estimates suggest organizations make an annual investment in excess of $55 billion for training and development (Bassi & Van Buren, 1998). Unfortunately, much of this investment is made in training interventions that are guided more by art than by science. This state of affairs is increasingly problematic as it has been noted that as 'task demands become less predictable, the traditional industrial–organizational perspective to training design has diminishing relevance' (Smith, Ford, & Kozlowski, 1997, p. 99). In order to develop the adaptive expertise required for team effectiveness in chaotic context, 'training systems must shift in orientation from off-site, single episode, and individual level skills delivery to multi-episode, on line, and multilevel systems. Training must be increasingly shifted to the work environment, focused on the development of adaptive individual and team skills . . .' (Kozlowski, 1998, p. 116).

Consistent with this line of thinking, team training has been conceptualized as a set of theoretically driven tools, methodologies, competencies, and training objectives which when carefully infused synthesize to form an instructional strategy (Salas & Cannon-Bowers, 1997b). Efforts to understand team training have produced a plethora of findings which support

dozens of instructional strategies including cross-training (Blickensderfer et al., 1998; Cannon-Bowers, Salas, Blickensderfer, & Bowers, 1998; Volpe, Cannon-Bowers, Salas, & Spector, 1996), team leader training (Salas, Burke, & Stagl, in press; Tannenbaum et al., 1998), and self-correction training (Blickensderfer, Cannon-Bowers, & Salas, 1997; Salas, Cannon-Bowers, & Smith-Jentsch, 2001). In what follows we discuss scenario based training and metacognition training which are instructional strategies often coupled with simulation technologies.

Scenario Based Training Scenario based training (SBT) is an instructional strategy that has been the focus of intense interest and use, due in no small part to the ongoing technological revolution. SBT delivers an integrated series of trigger events which provide trainees with multiple opportunities to practice and receive actionable developmental feedback while immersed in a dynamic environment (Cannon-Bowers, Burns, Salas, & Pruitt, 1998). This type of training relies upon a structured measurement system (e.g., TARGETs) which is specifically designed to facilitate a rater's efforts to perceive and capture multiple displays of targeted competencies (Dwyer et al., 1997).

SBT can be coupled with high or low fidelity simulations. Integrating SBT and simulation technologies can serve to increase psychological fidelity, experimental realism, and mundane realism. During a simulation a micro-world is created that mimics the features of the actual performance environment (Senge, 1990). Microworlds encourage the adoption of a wide range of strategies which would either be considered too costly or risky in reality. Furthermore, simulations encourage team risk taking and experimentation because they create an environment characterized by psychological safety (Edmondson, 1999, 2002). Combining scenario based training with simulation technology creates a flexible approach that allows team members to receive immediate, continuous, and dynamic feedback regardless of co-location.

Team members who participate in simulations benefit from developing more accurate cognitive maps or mental models of the variables that impact team performance and effectiveness (Jacobs & Jaques, 1987). In response to its growing popularity, efforts are underway to construct 'how to' guides for designing and delivering this instructional strategy (Fowlkes & Burke, in press-a) and for constructing structured performance measurement systems for use within SBT (Fowlkes & Burke, in press-b). These step by step guides are invaluable because they summarize lessons learned from past research effectively utilizing scenario based designs.

Metacognition Training Metacognition training is an instructional strategy that targets trainee's executive monitoring and self-regulatory cognitive processes for development. In essence, the training is designed to enhance

team member metacognitive skills that in turn serve to regulate the application of cognitive abilities such as inductive and deductive reasoning. Evidence is beginning to accumulate which suggests that this type of training can promote both individual metacognition and collective team metacognition (Cohen, Thompson, Adelman, Bresnick, & Riedel, 1999; Tannenbaum et al., 1998; Zaccaro, Rittman, & Marks, 2001). Instructional strategies that are specifically designed to enhance individual and shared metacognition should also increase team members' self-evaluation in performance episodes (Lord & Emrich, 2001). Information gathered by team members during self-monitoring promotes the development and maintenance of both individual mental models and shared mental models. This suggests metacognition training can enhance adaptive team performance directly, as well as indirectly, via its impact on the development of shared mental models, tacit knowledge, and social intelligence.

Most training programs are not designed to promote the use or development of metacognition or self-regulation (Kozlowski, 1998). Fortunately, guidelines and principles can be called upon to design training which improves cognitive complexity. For example, metacognitive skills can be fostered by constructing instructional strategies that include advanced organizers and via learning environments which prompt mastery goal orientations. Furthermore, training design characteristics such as complexity, difficulty, use of triggers, degree of learner control, sequencing, and variability are proposed to 'impact the depth or speed of knowledge acquisition' (Kozlowski et al., 1998, p. 5).

In summary, corporate investment in physical and human capital fuels a reciprocal relationship whereby growth in employee skill facilitates the adoption of increasingly high-tech equipment. However, under fiscally tight conditions organizations can expect that investments in human capital will lead to greater increases in productivity than similar investments in physical capital (Cascio, 1998). The guiding philosophy driving all of the above research is that teamwork must be fostered through a systematic effort to provide team members with opportunities to grow and apply the competencies which facilitate adaptive performance and overall team effectiveness. Furthermore, an underlying assumption is that 'metacognition is somewhat malleable and can be influenced, at least for some individuals' (Schmidt & Ford, 2001, p. 25). Irrespective of the instructional strategy utilized, a systematic effort should be made to theoretically ground training in the principles of learning, training, and adult cognition.

Theme 10: renewed interest in individual differences

Open systems are characterized by equifinality (Katz & Kahn, 1978). The principle of equifinality states that there are many avenues (i.e., organiza-

tional structures and methods) to achieve the same successful ending. This is nowhere more prevalent than when considering team performance. However, in order to achieve and sustain team effectiveness all teams must import energy in the form of human capital. The process of securing and developing human capital often involves the assessment of team member characteristics.

Teams are comprised of a set of individuals who think, do, and feel. A strong argument can be made that what team members think, do, and feel is driven by a mixture of context, experience, competency, maturation, and personality. In regard to the latter of these factors, there is a growing wave of interest in the team member personality traits that can contribute on a number of levels to system effectiveness (Campbell & Kuncel, 2001; Jackson, 1996; Klein & Saltz, 2002; Kozlowski & Bell, 2002). The renewed interest in personality is due in part to a more general awakening to the imperative of proactively managing human resources at the team level (e.g., staffing, selection, and training) to facilitate organizational effectiveness (Ployhart & Schneider, in press; Schneider, 1996; Schneider, Smith, & Sipe, 2000; West et al., 1998).

There is a growing wave of theory building and research concerned with team member personality factors and traits that can serve to facilitate team performance and effectiveness (Barrick, Stewart, Neubert, & Mount, 1998; Driskell, Hogan, & Salas, 1987; Mathieu, 2002; Neuman & Wright, 1999). In fact, empirical evidence suggests that many team member traits including collective orientation, conscientiousness, extraversion, and agreeableness are related to important team processes and outcomes (Barrick et al., 1998; Barry & Stewart, 1997; Driskell & Salas, 1992; Neuman & Wright, 1999). However, it should be noted that the characteristics comprising personality do not only operate in isolation. Personality should be conceptualized as a dynamic integrated structure that serves to facilitate environmental adaptation and which is witnessed by cross-situational behavioral consistencies.

It has been suggested that the impact of personality factors on team performance is mediated by the effort group members exert on a task, the knowledge and skills group members can apply to a task, and the task performance strategies used to accomplish a task (Driskell, Salas, & Hogan, 1987). Following this line of thinking, research has examined the role of personality in the generation of adaptive strategies which underlie team effectiveness. For example, teams with higher average levels of openness to experience and achievement striving and lower levels of dependability as measured by the NEO PI-R were more adaptive when engaging in the TIDE[2] computer simulation (LePine, in press). Results also suggest four facets of the personality factor openness to experience predict adaptive but not routine decision making performance (LePine, Colquitt, & Erez, 2000). The results from these latter two efforts serve to highlight the importance of capturing information about team member personality at more narrow levels than typically afforded by broad factor measures.

Future research should take a multilevel perspective to theoretically specifying how traits synergize or emerge to higher levels in team environments which are often characterized by high levels of autonomy, shared leadership systems, and distributed performance arrangements. This is essential for understanding how team member traits influence team processes and outcomes at a level beyond individual team members. Furthermore, research investigating team member personality must move beyond the notion of describing team members as being extraverted, or any other single attribute, and toward the idea of a complex trait system. In other words, longitudinal research is needed to examine the relationships between team member trait patterns, types or orientations, and subsequent team processes and performance (Mumford, Zaccaro, Johnson, Diana, Gilbert, & Threfall, 2000). In addition, research should increasingly seek to delineate principles to guide team composition interventions concerned with blending the optimal mixture of team characteristics (Kozlowski & Bell, 2002; West et al., 1998).

Theme 11: the multidisciplinary nature of team research

As noted, team performance is an elusive, dynamic, and complex phenomenon. It is elusive because routine team performance is subtle and at a cognitive level, making observation and measurement difficult. The dynamic nature of team performance is a result of the need for teams to respond to shifting environmental contingencies. Team performance is complex because of the many factors that act to impinge on and contribute to it in determining its effectiveness. Furthermore, teams perform in complex environments characterized by rapidly evolving ambiguous situations, information overload, severe time pressure and consequence of error, adverse physical conditions, and distributed multioperator problems.

The vastness of team performance ensures that no one field could approach mapping all of its inherent complexities and thus a multidisciplinary approach must be taken when forging a science of teams (Salas & Cannon-Bowers, 2000a). The multidisciplinary nature of team research and practice is exemplified in part by which constructs are considered as part of team effectiveness. For example, recent attempts to frame team effectiveness measurement have been guided by industrial and organizational psychology (Cannon-Bowers & Salas, 1997; Dickinson & McIntyre, 1997), cognitive psychology (Kraiger & Wenzel, 1997), and human factors psychology (Bowers, Braun, & Morgan, 1997). Furthermore, the current state of understanding about teams and teamwork draws on economic, engineering, and social psychological principles.

In some fashion, this breadth of interest in team phenomena and the subsequent diversity of research that is conducted is a double edged sword. Each unique approach contributes cross-disciplinary information but simul-

taneously imparts the idiosyncratic theoretical tenets of its field. This as of yet unresolved quandary has fundamental implications for efforts to develop a unified science of teams. Further integration is needed across these efforts in order to illuminate opportunities for multidisciplinary research and to ensure that limited organizational resources for team interventions are allocated in a maximally, mutually beneficial fashion. This issue and six other critical research needs are addressed in the second half of this review.

Theme 12: linking team research to human resource practices

Investments in the use of high performance work practices such as testing for selection and training for development are associated with lower employee turnover, greater productivity, and increased corporate financial performance (Huselid, 1995). In fact, this research suggests that a one standard deviation increase in the use of such practices is associated with a relative 7.05% decrease in subsequent turnover and on a per employee basis, $27,044 more in sales, $18,641 more in market value, and $3,814 more in profits. These estimates only include a firm's portion of the gains from increasing the use of high performance work practices, certainly employees, clients, strategic partners, industries, and society as a whole could benefit as well.

Huselid's (1995) research lends empirical credibility to what team researchers and practitioners have long recognized, that human resource practices, such as those designed to support teams, can a have a powerful influence on both human capital and the bottom line. In fact, the success of teams and multiteam systems implemented to achieve organizational goals such as total quality management is in part contingent upon transforming traditional human resource practices to specifically support the use of teams (Stone & Eddy, 1996). Following this line of thinking, research has investigated how human resource practices such as task analysis, performance appraisal and reward systems can be tailored to team environments.

Implementing team based systems and the human resource practices which support them should always be driven by the tenets of organizational behavior and organizational development (Morgeson, Aiman-Smith, & Campion, 1997). Specific guidance is also available on conducting team task analysis (Burke, in press; McNeese & Rentsch, 2001). This research seeks to overcome current barriers stifling the use of team task analysis by providing a systematic and practical step by step process for measuring, collecting, and validating the task work and teamwork KSAs underlying team effectiveness. Furthermore, research has also investigated how the use of teams and multiteam systems influences performance appraisal processes (Murphy & Cleveland, 1995). Murphy and Cleveland (1995) suggest that organizations with team based structures must revisit their notions regarding the target of appraisal, how appraisals are utilized, and how job performance is conceptualized. In fact, Deming (1987) has asserted that

relying upon individual performance appraisals in team environments only serves to inhibit team effectiveness. The research on team based performance appraisal is similar in nature to Hackman and Oldham's (1980) call for aligning organizational reward systems with the structure of work in teams. All of this research provides human resource practitioners with strategies, tools, and tips for creating synergy between their initiatives and the particularities of teams.

Teams Research Needs and What We Need To Do Better

Need 1: the need to get out of the lab, conduct team research 'in the wild'

Within the last 25 years contextual issues have received increased scrutiny among team researchers. Despite the argued importance of context and studying 'real teams' there has been little empirical based field research (Guzzo & Dickson, 1996). One potential reason is the difficulty in studying phenomena 'in the wild', not to mention the added complexity that presents itself when one is studying teams. For example, more resources in terms of personnel are typically required when examining teams (i.e., 50 individuals versus 50 teams comprised of 3 people each). Additionally, within real teams there are many contextual variables that may vary. This, in turn, impacts the comparability of findings and lessons learned.

Despite this complexity, there are at least three domains that have made concerted efforts to study real teams working in real organizations: research studying high reliability organizations (HROs) (Flin, 1995; Roberts & Bea, 2001; Weick & Sutcliffe, 2001), research examining medical teams (Gaba & DeAnda, 1988; Xiao, Hunter, Mackenzie, Jefferies, Horst, & LOTAS Group, 1996), and research investigating self-managing teams (Ensley & Pearce, 2001; Manz & Sims, 1992). Here we briefly describe the work that has been conducted on teams within high reliability organizations and medical teams as these represent some of the most recent trends.

HROs are those that function within complex, fast-paced and ambiguous operational environments, yet are able to consistently maintain a high safety record (e.g., aviation crews, nuclear power teams, and military teams). Recent work within this area has begun to examine teams that are embedded within such organizations to determine how they contribute to organizational effectiveness. A key finding from this literature is that cultures rewarding safety, continuous learning, expecting the unexpected, and a focus on 'the big picture' promote coordination and effectiveness (Roberts & Bea, 2001; Weick & Sutcliffe, 2001).

Another area that is just emerging is an increased focus on medical teams and their effectiveness. There is an increasing realization that those within the medical community require more than merely taskwork skills, but also teamwork skills as many critical tasks are done within a team setting. This

realization, partially driven by the publicity that medical error has recently witnessed, has led researchers from human factors and the medical field to examine (a) the critical teamwork factors within these environments (Sexton, Helmreich, & Thomas, 2000), (b) the role that context plays (i.e., organizational culture), (c) team design factors, and (d) how to combine simulation (e.g., METI and Combat Patient Simulator) with experiential learning to provide better training. Finally, Baker and Salas' (1997) call for longitudinal, observationally based investigations should be heeded when designing future medical team research and initiatives.

Need 2: going distributive, the need to understand distributed teamwork

The interdependencies inherent to teamwork have historically required teammates to be co-located, however, recent technological advances now enable members of the same team to reside in distant temporal or geographic locations (Bell & Kozlowski, 2002). Teams comprised of distributed members typically: (a) are not constrained by size limitations; (b) have distributed functional expertise; and (c) interact via computer mediated communication (Salas, Burke, & Stagl, in press). Distributed teams are not, however, a unique type of team, *per se*, but rather a type of team member configuration. Distribution is a performance arrangement that impacts both the cues team members receive and act upon. Furthermore, distributed teams may or may not utilize virtual reality technologies to enhance the cues team members can send or receive (Priest, Stagl, Klein, & Salas, in press). For example, an international 'engineering project team' contracted as part of the ongoing restoration of the of World Trade Center complex may be comprised of geographically or spatially disbursed cross-functional experts who on occasion engage in some form of virtual teamwork to simulate contingencies, support decision-making, and guide strategy development. No less an important mission will be undertaken by distributed task force members as NASA and the world seeks answers to the space shuttle Columbia tragedy.

Distributive teamwork is still evolving and remains largely unexplored (Driskell, Radtke, & Salas, in press). Recent efforts are beginning to investigate how teamwork and learning occurs in distributed environments (Kahai, Sosik, & Avolio, 1997). For example, recent research has described a 'distributed coordination space' in which team performance can occur almost anytime or anyplace (Fiore, Salas, & Bowers, in press). Research has also asserted that the actual distance of team member separation is of secondary importance to the impact of that distance on team process (i.e., computer mediated communication) (Bell & Kozlowski, 2002).

Organizations are increasingly instituting distributive team structures to gain access to a much deeper pool of talent, minimize operational costs, and improve employee satisfaction and retention (Venkatesh & Johnson, 2002).

In this manner, a critical human capital concern can be addressed while simultaneously contributing to the bottom line by reducing facility and travel costs. There are, however, a number of taskwork and teamwork challenges associated with distributive teamwork. For example, team 'opacity' occurs as a result of a loss of cues resulting from distributive teamwork and can be conceptualized as an additional form of workload (Fiore et al., in press). Furthermore, issues pertaining to team member computer skills, trust and identity, social and bodily cues, social isolation, and information overload, must be addressed if distributed teams are truly to reach their maximum potential. Research is also needed to examine the potential of virtual environments as mechanisms for overcoming the debilitating effects of cue reduction such as the social isolation distributive team members are exposed to.

A particular emphasis in future research should be placed on the continuing exploration of the implications of recent developments in cognitive psychology for decision-making in distributive and virtual environments. This research must leverage constructs from cognitive psychology to develop a science of both distributive teams and virtual teamwork. A central thrust of this program should be directed at distilling strategies for designing and delivering distributive decision-making training (Swezey, Owens, Bergondy, & Salas, 1998). In addition, a number of instruments have been developed for knowledge elicitation and measurement in distributive environments and validity evidence needs to be collected for these tools.

Need 3: a need for a functional outlook on team leadership

Leaders are instrumental to orchestrating and improvising performance and effectiveness. In fact, some have stated that team leadership is '. . . perhaps the most critical factor in the success of organizational teams' (Zaccaro et al., 2001, p. 452). Therefore, it is surprising to note how little research has been conducted to investigate team leaders and the leadership they provide. These circumstances are troublesome in light of the fact that many of the characteristics of traditional leadership theories do not generalize to the domain of team leadership (Kozlowski, 2002; Kozlowski & Bell, 2002; Kozlowski, Gully, Salas et al., 1996; McIntyre & Salas, 1995).

Although largely neglected, the role that team leaders occupy in developing and maintaining team effectiveness is an area that has witnessed increased research activity during the past few years and most of this work has adopted a functional perspective of team leadership (e.g., Fleishman, Mumford, Zaccaro, Levin, Korotkin, & Hein, 1991; Hackman & Walton, 1986; Zaccaro et al., 2001). Functional leadership theory suggests team leaders must 'do whatever it takes' to solve social problems while navigating complex environments. In fact, this 'do whatever it takes' perspective is

how former Pittsburgh Steelers coach Chuck Noll, the only four time Super Bowl winning head coach, defines teamwork.

Team leaders facilitate the development and maintenance of team coherence (i.e., shared affect, cognition, and behavior) by filling functional roles and engaging in functional behaviors (e.g., Kozlowski & Bell, 2002; Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996). During this process, team leaders adopt a number of roles including task facilitator, process coach, team trainer, and boundary spanner. These roles are enacted in order to successfully accomplish four broad sets of leader behaviors: information search and structuring, information use in problem solving, managing personnel resources, and managing material resources.

Through the enactment of the above roles and behaviors team leaders develop, maintain, and foster the shared affect, cognition, and behavior (i.e., team coherence, Kozlowski, Gully, Salas et al., 1996) that is needed for coordinated, adaptive action. Team coherence is created and sustained by a team leaders' efforts to engage in a sensemaking and sensegiving process (Burke, Salas, Stagl, & Fowlkes, 2002; Burke & Zaccaro, 2000; Weick, 1996). In essence, this means that during periods of high task load leaders should provide team members with situation assessment updates. Situation updates serve to cue shared goal strategies and role linkages critical for maintaining team coherence and team adaptability (Kozlowski, Gully, Salas et al., 1996).

Need 4: global opportunities and the need to focus on team culture

A recent estimate suggests that over 10,000 American companies engage in business overseas (Adler, 1997). This number will only rise as transnational organizations seek to reap the rewards of the global economy and growing consumer wealth. These trends are increasingly creating situations where members of different national cultures must work together in a coordinated and adaptive fashion (Salas, Burke, Fowlkes, & Wilson, in press). As an awareness of this development, there is increasing interest in determining what differences in national culture mean for team process and effectiveness (Burke et al., 2002; Earley & Erez, 1997).

The literature on cultural diversity indicates that national cultures differ in terms of their values and preferences for action and cognition (see Hofstede, 1980; Kluckhohn & Strodtbeck, 1961; Parson & Shils, 1951; Triandis, 1989). How these differences interact to impact the coordinated, adaptive action needed within organizational work teams is not yet understood as we are only beginning to scratch the surface. For example, using the diversity literature as a basis, it has been argued that multicultural teams can perform better over time than culturally homogeneous teams (Hoffman & Maier, 1961; Janis, 1972; Thomas, 1999; Watson, Kumar, & Michaelsen, 1993). The phrase 'over time' seems to be key in this assertion in that more often than not members perceive multicultural teams as being challenging and frustrating

(Helmreich & Merritt, 1998). This frustration is often evidenced in the fact that multicultural teams tend to initially result in: (a) process loss (Thomas, 1999; Helmreich, 2000; Li, 1999), (b) lower levels of cohesion (Katz, Goldston, & Benjamin, 1958), (c) trust issues (Adler, 1997), and (d) an increased use of inappropriate stereotypes to assign attributions (Horenczyk & Berkerman, 1997). Thus, the bottom line appears to be that while multicultural teams may be effective, they are effective only if process difficulties are handled early in team formation.

In order to mitigate the potential process loss and resulting consequences, researchers and practitioners must first understand how cultural dimensions interact within a team whose members are culturally diverse. Research is needed to tackle this problem, as current work done on culturally diverse groups has examined differences in national culture across groups not within them (i.e., American work group versus Japanese work group). This is further complicated by the fact that an examination of the body of cultural diversity literature finds variability in both the patterns proposed to underlie culture and how those patterns are defined.

While researchers are beginning to extract, decipher, and leverage the lessons learned from the study of cultural diversity at the individual level to multicultural teams, there remains much work to be done. In fact, history has taught us that teams are a different entity than individuals and the KSAs underlying effective individual work are not the same as those driving effective team member performance (e.g., Morgan, Glickman, Woodard, Blaiwes, & Salas, 1986; Hackman, 1990). There are a number of questions that remain to be answered including: which cultural dimensions pose the most challenge in terms of promoting effective teamwork, what challenges do multicultural teams pose for team leadership, what are the implications for integrating new members, how do the different cultural dimensions interact to impact team process and team effectiveness, and what are the best methodologies and instructional strategies for training individuals to be effective members of multicultural work teams? With regard to training, there are many vantage points that can be leveraged against, although most programs focus primarily on attitude change (as opposed to team behavior) and on individual skills (as opposed to team skills).

Need 5: a need to master change with adaptive teams

Adaptability is a multifaceted construct that is manifested at the individual, team, and organizational level. However, until recently most of the research investigating adaptive performance has focused on the individual end of this spectrum. For example, a programmatic effort investigated the individual adaptive components of most jobs and advanced the Job Adaptability Inventory (JAI) (Pulakos, Arad, Donnovan, & Plamondon, 2000). Validity

evidence in support of Pulakos and colleagues efforts was recently collected in a concurrent, criterion-related validation study (Pulakos, Schmitt, Dorsey, Arad, Borman, & Hedge, 2002).

Team adaptability has been defined as '... the necessary modifications in order to meet new challenges' (Klein & Pierce, 2001, p. 3), '... the capability of the team to maintain coordinated interdependence and performance by selecting an appropriate network from the repertoire or by inventing a new configuration' (Kozlowski et al., 1999, p. 29), and the 'process by which a team is able to use information gathered from the task environment to adjust strategies through the use of compensatory behavior and reallocation of resources' (Cannon-Bowers et al., 1995, p. 344). Each definition alludes to the process of compilation and performance across levels and time underlying team adaptability (Kozlowski et al., 1999).

As the concern for defining the nomological network of adaptability has grown, so to has the attention given to constructing instructional strategies to facilitate adaptive performance (e.g., Kozlowski, DeShon, Schmidt, Chambers, Milner, Weichmann, & Davis, 2001; Marks, Zaccaro & Mathieu, 2000). For example, Klein and Pierce (2001) advance a number of strategies to improve team adaptability including training for internal and external adaptations, developing an 'adaptation mindset' and appreciating a teams' affordances. These authors suggest that traditional training approaches, which frequently utilize a 'walk, crawl, run' strategy, train for task mastery and present content as separate components, actually serve to inhibit subsequent adaptability. Building upon these concepts, Pierce and Klein (2002) developed two online training programs that utilize embedded decision and performance indices to enhance adaptive performance.

Similarly, it has also been suggested that 'behaviorally oriented training that focuses on maximizing achievement performance goals and minimizing trainee errors may enhance training performance but hinder the development of deeper skills necessary for generalization and adaptability' (Kozlowski, 1998, p. 120). Training scenarios targeting adaptive capabilities should be ambiguous, novel, and challenge normative skills. Furthermore, as adaptive performance is largely contingent upon team and team member metacognition, future research should be conducted to examine the role of different forms of interpretative feedback in promoting metacognition and create scenario based designs with embedded error events that trigger metacognition and foster self-regulation during team training (Kozlowski, 1998).

One manifestation of these recommendations is the team adaptation and coordination training (TACT) that was developed in the TADMUS research program. This strategy enhances a team's ability to switch from explicit to implicit coordination in accord with environmental changes in workload and stress (Serfaty, Entin, & Johnston, 1998). Teams receiving TACT training exhibited both higher levels of implicit coordination and adaptive performance.

Need 6: need to better integrate models and frameworks of team effectiveness

There has been an explosion in the interest in and research of teams during the past 25 years. The proliferation of teams and concurrent intense focus on developing human and social capital is supported by a growing body of literature. Indeed, evidence suggests organizations built wholly upon team structures are more effective at cross-functional decision-making and have higher levels of performance (Mohrman et al., 1995). The current wave of activity will likely only continue to grow and the chief benefactor will be the science of teams and teamwork and those who utilize its principles to guide the design and delivery of research programs and developmental interventions.

The exponential growth in research has coincided with a proliferation in the number and nature of definitions and operationalizations of team constructs. For example, some of the work we reviewed made little distinction between work groups and work teams. However, researchers have defined teams as unique entities characterized by: two or more individuals, interacting socially, adaptively, having sharing goals, holding meaningful task interdependencies, hierarchically structured, and having a limited life-span, whose expertise and roles are distributed and are embedded within a dynamic environmental/situational context that influences and is influenced by team, inputs, processes, and outcomes (Salas, Burke, & Stagl, in press).

The differences in specificity of these two approaches to studying work teams underscores the need for researchers to develop a shared mental model of the constructs comprising the nomological net of teams (Oser, MacCallum, Salas, & Morgan, 1989). This is similar to the philosophy driving recent efforts which distinguished between (1) crews and teams (Cannon-Bowers, Salas, & Blickensderfer, 1998), (2) teams and groups (Ilgen, Major, Hollenbeck, & Sego, 1993), and (3) teams and self-managed work teams (Yeatts & Hyten, 1998). In addition, much of current team literature unnecessarily confounds distributed teams with virtual teamwork. This conceptual sloppiness has spilled over into team research. For example, Sundstrom et al. (2000, p. 52) reviewed ninety team field studies and experiments and subsequently stated that there was '... a huge variety of operational definitions.' These authors also noted that a majority of the ninety studies reviewed could be characterized as investigating new strands of research.

If the central goal of team research is to build a science of teamwork by delineating general models and interventions then there are several problems associated with the accelerating diffusion in the definition and measurement of constructs (Kozlowski & Bell, 2002). Defining nearly identical constructs in slightly varying ways may serve to accumulate evidence in support of a particular theory, but this is clearly of secondary concern to generating and

generalizing collective knowledge about team effectiveness (Campbell, 1990; Ilgen et al., 1993; Lewin, 1951). In other words, there are clear incentives associated with maintaining a common language when engaging in team research and instructional strategy development (Gully, 2000; Salas & Cannon-Bowers, 2000b). The complexities inherent to the behavioral sciences in general, and teams research in particular, sustain an environment where encoding, accessing, and storing accumulated knowledge is difficult at best (Campbell, 1990). Thus, where appropriate, we strongly encourage future endeavors to seek to maximize limited resources by building upon existing definitions, principles, guidelines, and tips which have been delineated from the decades long programmatic efforts to explore teamwork discussed within this chapter.

Other research issues are also pressing, prompting several avenues for future systematic initiates. For example, existing models and frameworks need to be further validated, for while we have a proliferation of conceptual models very few have been examined empirically. Evidence for these models needs to be gathered to illustrate the points of support as well as contention. Furthermore, the focus on the fluidity of team process, whether driven by team maturation or task cycles, represents a complex issue. Research should seek to investigate both the interrelations amongst team processes as well as potential causal linkages between them.

Need 7: the need to leverage research from all quarters

There is an unfortunate tendency for organizational research to ignore the findings from outside of a narrowly defined section of industries deemed 'appropriate' for the study of work teams. Specifically, we noted that several comprehensive reviews of team effectiveness largely ignored the multitude of team research findings that have been accumulating in the military, aviation, and sports communities for nearly a century. The stance taken by these restricted initiatives implies that the findings from these areas are of little value. This perspective is primarily fueled by a belief that the particularities inherent to military, aviation, and sport team effectiveness limit the generalizability of findings from research with these teams to other team settings. In fact, some have gone so far as to argue that collectives in these environments are not even teams; however, we beg to differ. In fact, a closer inspection of the complex, fluid, and sometimes chaotic environment in which these teams operate is analogous to looking into a crystal ball and viewing the future of operational environments in a global economy. Therefore, we recommend that those charged with advancing the science of teams take a moment to understand and incorporate the team effectiveness research from all quarters.

A Science of Teams

Travelers seeking refuge from the accelerating storm of team research and practice and its associated roller coaster of complexities will not find sanctuary. In fact, as expressed by the second law of thermodynamics the chaos is always increasing (Hawking, 1997). Indeed, the increasingly complex nature of teams and their operating environments is fortunate on a number of levels. If environmental complexity were somehow decreasing, by theoretical implication our universe would be contracting, the flow of time reversed and teams performance would be carried out in total darkness because stars would collect rather than discharge photons. In other words, all open systems are fluid, always growing in differentiation, elaboration, integration, and coordination (Katz & Kahn, 1978; Day & Lance, in press).

Thus, the science of teams would markedly benefit from a more systematic and ongoing specification of the tactical and strategic goals, research questions, constructs, and operationalizations of interest. Furthermore, future initiatives would be well advised to navigate the 'permanent whitewater' of team research by calling upon principles delineated from already ongoing systematic investigations of the science of teams and teamwork such as those reviewed in this chapter. It seems team effectiveness is still an elusive, dynamic, and complex phenomenon, but progress has been and will continue to be made.

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Chapter 3

CREATING HEALTHY WORKPLACES: THE SUPERVISOR'S ROLE

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CREATING HEALTHY WORKPLACES: THE SUPERVISOR'S ROLE

Employee health is affected not only by a job's physical environment, but also by its psychosocial environment. Consequently, *psychosocial*, which refers to the interface between social and psychological factors, is a term employers need to become familiar with. Negative workplace psychosocial conditions have been linked to sickness absence, hypertension, depression, burnout, cardiovascular disease, and other ailments (Boman, 1988; Burke, Shearer, & Deszca, 1984; Dormann & Zapf, 1999; Kivimaki, Vahtera, Thomson, Griffiths, Cox, & Pentti, 1997; Motowidlo, Packard, & Manning, 1986; Smith, Kaminstein, & Makadok, 1995). Not surprisingly, research has also established associations between workplace psychosocial conditions and health care costs (Manning, Jackson, & Fusilier, 1996). Many organizations are experiencing budgetary crises because of increases in the cost of employee health insurance, leaving them scrambling to cover costs. These escalating costs siphon away funds that could have been invested in the firm and shared with stakeholders. Learning how to create a healthy psychosocial work environment may help employers manage their costs and maintain their competitiveness.

Employees under siege from negative psychosocial conditions can devote only a fraction of their mental energy to their work. Though physically present on the job, they succumb to 'presenteeism' (Cooper & Williams, 1994) as they struggle to cope with the work environment and manage their reactions to stressors. Successfully utilizing leaner, high-performing workforces requires employees who are able to focus on the job at hand

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with a clear mind and a willing spirit. A healthy psychosocial environment will be required to create and maintain a workforce like this.

This chapter discusses approaches for creating psychologically healthier work environments and protecting employee well-being. Organizational and individual influences on well-being are discussed along with the supervisor's role in moderating these influences. Later in the chapter, the supervisor's direct influence on employee well-being is addressed. The focus is on supervisors because they can be a major influence on employee worklife. Supervisors are an accessible conduit for introducing change to the work environment (Bunker & Wijnberg, 1985), and they play an important role in mediating the intersection between individual needs and organizational demands (Walker, Guest, & Turner, 1956). Although they must implement management directives, supervisors must also transmit employees' concerns upward, sometimes defending employees from management actions that would have negative effects on them (Hirszowicz, 1985). Unfortunately, although supervisors' potential contribution to employee well-being is substantial, it is often ignored.

INFLUENCES ON EMPLOYEE WELL-BEING

Role Stress

As a result of the influential *Organizational Stress: Studies in Role Conflict and Ambiguity* (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), role stress has been extensively studied. The focus has been on three types of role stress: role overload, role ambiguity, and role conflict. *Role overload* usually refers to situations in which an employee has too much to do in the time available (i.e., *quantitative overload*). The term *qualitative overload* is also sometimes used, referring to situations in which an employee's work is so complex it becomes a stressor. Although occasional bouts with role overload are probably unavoidable in most jobs, role overload is a concern. It has been found to be correlated with heavy smoking, elevated serum cholesterol, hypertension, increased heart rate, job dissatisfaction, lower quality of performance, and feelings of tension, anger, and personal failure (Jex, 1998; Sales, 1969).

Role ambiguity is present when the information about expectations related to an employee's role is ambiguous or deficient (Beehr, 1995). It may result from lack of clarity about the scope of one's responsibilities or uncertainty as to whose expectations one is required to meet. Role ambiguity has been found to be correlated with job dissatisfaction, fatigue, tension, and decreased work ability (Beehr, 1995; Kahn & Byosiere, 1992; Tuomi, Ilmarinen, Martikainen, Aalto, & Klockars, 1997).

Role conflict occurs when an employee is faced with two or more sets of expectations that conflict with one another; compliance with one set of expectations conflicts with another set of expectations. A common type of role

conflict is experienced by working parents who want to do a good job both at home and work. Role conflict has been found to be associated with negative affect, tension, and somatic complaints (Kahn & Byosiere, 1992).

Supervisors are in a key position to manage role stress. They influence role overload when they determine employees' scope of work and delegate job assignments, and they can monitor workload and its effects on employees. When employees experience qualitative overload, the supervisor can help employees analyze the task and make decisions, acquire training to make the task easier, or help them make contacts with others who have dealt with similar tasks. If an employee is suffering from quantitative overload, the supervisor could pitch in to help, distribute some of the work to co-workers, or acquire contingent staff to help. Employees whose supervisor makes additional resources available when needed report less job stress and psychiatric disturbance (Gilbreath, 2001). Supervisors can sometimes prevent overload through planning. Employees who say their supervisor plans work to level out the load and reduce peaks and bottlenecks report lower levels of psychological strain (Gilbreath, 2001).

Supervisors need to learn employees' tolerance for ambiguity and prevent unnecessary role ambiguity by clearly explaining job responsibilities, giving unambiguous information about expectations, and checking for 'gray areas' to ensure mutual understanding (Winnubst, Buunk, & Marcelissen, 1988). It is important for supervisors to use good communication practices, such as observing non-verbal signals and requesting feedback, to ensure that employees understand expectations and assignments. Lower levels of role ambiguity may partially account for the finding that employees working for supervisors who encourage them to ask questions report lower levels of psychological strain (Gilbreath, 2001).

Supervisors can reduce role conflict by recognizing the value of work–life balance and allowing some flexibility in a work schedule to take care of non-work demands such as a sick child or parent. Not surprisingly, employees whose supervisor allows for schedule flexibility to meet home-related demands indicate that they have lower levels of psychological strain (Gilbreath, 2001).

Uncertainty

Uncertainty occurs in the workplace in a number of ways, such as whether one's job performance is adequate, or uncertainty regarding one's job security due to market conditions. It is unrealistic to think that all uncertainty can be eliminated from organizational life. However, because uncertainty can reduce employees' job satisfaction (O'Driscoll & Beehr, 1994) and generate stress, it is worthwhile to minimize it whenever feasible.

Supervisors can reduce uncertainty in a variety of ways. For example, they can stay tuned in to the grapevine and dispel upsetting inaccurate rumors.

They can encourage communication and information exchange with other work groups (Hoyt & Gerloff, 1999), and they can provide performance feedback that reduces employee uncertainty about the adequacy of their performance. Employees who perceive that their supervisor gives helpful feedback about their job performance report less job-related stress and psychiatric disturbance (Gilbreath, 2001).

Supervisors should provide what information they can to reduce uncertainty rather than taking a 'knowledge is power' stance that makes employees feel distrusted or marginalized. Supervisors can also reduce uncertainty by being forthright. When change is forthcoming in an organization, employees often assume that supervisors are privy to the nature of the impending changes. Supervisors who pretend they know what's going on when they don't will exacerbate an already stressful situation (Williams & Cooper, 1999).

It also appears that supervisors can help make employees more resistant to uncertainty by boosting their organization-based self-esteem (OBSE). Hui and Lee (2000) note that 'organizational uncertainties may threaten an individual's sense of self-worth and feelings of competence' (p. 3). This may explain why they found employees with low OBSE to be more reactive to uncertainty.

Task Autonomy

Task autonomy refers to a feeling of control over the outcomes of one's work. An acceptable degree of task autonomy is important for psychologically healthy work (Beehr, 1995; Sloan & Cooper, 1986). It is negatively correlated with strains such as depression, low self-esteem, health complaints, and sick leave (Beehr, 1995; Kroesser & Meckley, 1991; Landeweerd & Boumans, 1994). The amount of autonomy employees enjoy depends on how they are regarded by their employer (e.g., how much they are trusted); thus, workplaces where employees enjoy a great deal of autonomy may often have other positive features, such as an environment of trust and respect.

In most work situations autonomy must come from supervisors. They can organize work so it can be done with either more or less supervisory direction. And supervisors can help employees build areas of expertise in which they become able to work with a great deal of autonomy. Doing so should not only help the employee, but the supervisor as well. An employee who is able to work more autonomously requires less monitoring and permits the supervisor to spend more time on managerial activities such as planning and strategizing. Therefore, supervisors should help employees become proficient in their work and grant them authority to make decisions. Employees who say their supervisor gives them the authority to do their job as they see fit report better psychological well-being (Gilbreath, 2001).

Balance Among Objectives

Some writers argue that balance among objectives is necessary for a psychologically healthy work environment. Leyden and Kuk (1993), for example, view a healthy organization as one which balances and enhances its subsystems without losing sight of its ultimate purposes. This is similar, at the individual level, to maintaining balance in one's lifestyle (e.g., balance between work and family life), which is important for psychological and physical health. Imbalance in any direction could eventually have a negative impact on employee health. An organization might reach such a state of imbalance by setting overly ambitious objectives and burning out employees in the process of striving to reach them.

Using Leyden and Kuk's (1993) framework, those seeking to create healthy workplaces should simultaneously strive for organizational effectiveness while maintaining healthy work climates and norms of behavior. Supervisors can do much to create a work climate that values both productivity and well-being. They can fight back against the long-hours culture and set an example of work–life balance and encourage employees to maintain healthy work habits. Employees whose supervisor helps them keep work in perspective and who strikes the proper balance between productivity and employee well-being report lower levels of job-related stress and psychiatric disturbance (Gilbreath, 2001).

Balance Between Job Demands and Control

Karasek and Theorell (1990) assert that health-damaging job stress is not inevitable, but the result of how we have organized work in the Western industrial society. They advocate the development of 'new models of the psychosocial work environment' (p. 2) by designing jobs that allow people to learn and master challenges. Karasek and Theorell characterize psychologically healthy work in terms of job control and psychological demands. They refer to jobs in which employees have a high degree of control about how to meet their job's high psychological demands as *active jobs*. They do so because they have found that people in these jobs (e.g., engineers, physicians, attorneys, and farmers) are active not only at work, but tend to be active in their discretionary (non-work) time, too. One of their more provocative conclusions is that high psychological demands don't necessarily result in strain. According to the demands–control model, *high-strain jobs*, or those highest in terms of health risk, are those where decision latitude is low and psychological demands are high. This makes sense. If employees are constrained in terms of how to respond to heavy job demands, they may have to expend more energy coping (psychologically) with the job demands than in meeting them.

The demands–control model is intuitively appealing, and it has prompted initiation of a number of studies investigating it. The results indicate that low

job control can be a harmful job characteristic. Monitoring supermarket self checkout lanes is an example of a low-control job. Others in typically low-control jobs would include assembly line workers, file clerks, receptionists, and garment workers. Men with a history of working in low-control jobs have been found to have a higher risk of cardiovascular disease mortality than men in high-control jobs (Johnson, Stewart, Hall, Fredlund, & Theorell, 1996), and high psychological demands combined with low control is associated with absence, tardiness, depression, anxiety, and job dissatisfaction (Dwyer & Ganster, 1991; North, Syme, Feeney, Shipley, & Marmot, 1996; O'Connor, White, O'Connor, & Bundred, 2000).

Greenberger, Strasser, and Lee (1988) found that supervisors play a significant role in affecting employees' perceptions and behaviors related to control. Supervisors can reduce demand–control imbalances through job redesign and empowerment. They can also help employees become confident enough to accept additional job control and then delegate an appropriate amount of control. Employees have differing thresholds at which challenge becomes stress, and supervisors should learn those thresholds and manage them accordingly. This isn't asking supervisors to be mind-readers; it just requires that they stay in touch and ask questions.

Employee Self-Efficacy

Self-efficacy is the belief that one can successfully execute a desired course of action. More simply put, self-efficacy is a positive feeling about one's ability to do what one needs to do. Self-efficacy is thought to influence performance through its effects on employees' willingness to engage in a particular behavior and to persist when difficulties are encountered (Cervone & Peake, 1986). Increasing employees' self-efficacy can lead them to initiate and persist in coping efforts that increase the likelihood of successful outcomes (Cervone & Peake, 1986). Employees with high self-efficacy feel more capable of performing effectively, while those with low self-efficacy are likely to be uncertain of their ability to do their job.

Because self-efficacy influences behaviors that can affect one's degree of success in performing a task, employees with high self-efficacy could be expected to pursue and attain higher levels of performance. This seems to be the case. Self-efficacy has been found to be positively correlated with peer evaluations of job performance and military rank, and negatively correlated with number of quits and terminations (Riggs, Warka, Babasa, Betancourt, & Hooker, 1994; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982). A meta-analysis found self-efficacy to be 'positively and strongly related to work-related performance' (Stajkovic & Luthans, 1998, p. 255). A high level of self-efficacy may help employees reach higher levels of job performance and cope with stressors more effectively (Jex & Bliese, 1999).

By leading to better job performance, self-efficacy should promote a positive self-concept and higher OBSE. Sherer et al. (1982) found self-efficacy to be strongly correlated with scores measuring self-esteem. A link between self-efficacy and self-esteem has implications for well-being, as positive self-esteem seems necessary for good all-round psychological well-being.

The effects supervisors may have on self-efficacy is important because of its implications for employees' levels of achievement, their self-concept, and their quality of life. Supervisors are in a position to influence employees' self-efficacy through training and reinforcement. They can help employees master new tasks, and they are a salient source of performance feedback. By building employees' self-efficacy, supervisors can help employees feel better about themselves and make them more effective employees. Employees working for supervisors who build employees' confidence report lower levels of job stress and psychiatric disturbance (Gilbreath, 2001). Conversely, repeated criticism and a preponderance of negative feedback from a supervisor can undermine employees' self-efficacy and self-image and generate a tremendous amount of stress.

It is particularly important to understand the effects supervisors may have on new employees. Individuals who succeed when attempting a new task tend to make positive inferences about their aptitude for the task. Failing to master a new task, however, can have lasting effects on one's perceived competence (Lepper, Ross, & Lau, 1986). It is important, then, that supervisors help employees achieve success in their attempts to master a new task or role in the organization. New employees are often uncertain about their ability to perform in their new job and organization, making them sensitive to signals about their ability. Signals from supervisors—verbal and nonverbal–play an important role therefore in the development of confidence, OBSE, and self-efficacy (Gardner & Pierce, 1998).

Person–Environment Fit

Person–environment (P–E) fit theory is based on the assumption that well-being and performance is a function of the interaction between the person and his or her environment. P–E fit theory provides an important framework for improving psychological health at work. Good fits between people and their environment are thought to promote health and contribute to morale, satisfaction, motivation, working capacity, health, and feelings of mastery and self-confidence (Joint ILO/WHO Committee on Occupational Health, 1986; Moos, 1988). Conversely, poor fits are associated with lower levels of well-being (Edwards & Rothbard, 1999; Leyden & Kuk, 1993).

Supervisors can help achieve good P–E fits in several ways. They can give applicants realistic job previews, discussing positive job features, their

supervisory style, and the job's frustrating aspects. Through astute questioning, a hiring supervisor may also be able to help applicants explore their job preferences and compare those to the position for which they have applied. Supervisors should also work with human resources professionals to choose a selection process that will help assess whether an applicant's skills and abilities fit the demands of the job. Once an applicant is hired, supervisors should build their knowledge of the new employees' skills and needs to make decisions on appropriate task assignments.

Congruent, Met Expectations

People have expectations about what they will find in their job and how they will be treated by their supervisor and the organization. Similarly, when supervisors hire an employee, they also have expectations. When the expectations of the employee and the supervisor are congruent, it is conducive to psychologically healthy employment because it reduces the chance that these expectations will be breached. When expectations are not congruent, given enough time, someone's expectations will be violated and the result will be dissatisfaction and other undesirable outcomes. When employees don't receive what they had expected to receive, this often leads to job dissatisfaction and lower job performance and turnover.

Congruent expectations are related to what has been termed the psychological contract. According to Robinson (1996), 'psychological contracts refer to employees' perceptions of what they owe to their employers and what their employers owe to them' (p. 574). Not all expectations are part of the psychological contract—only those resulting from perceived implicit or explicit promises by the employer (Robinson, 1996). Although they are implicit and unwritten, psychological contracts 'function like a contract in that if either party fails to meet the expectations, serious consequences will follow—demotivation, turnover, lack of advancement, or termination' (Schein, 1978, p. 112). Therefore, if work environments are to remain psychologically healthy, it is important that expectations be congruent and met and that psychological contracts remain intact.

Supervisors play an important role in fulfilling employees' expectations, and when employees perceive that their supervisor meets employees' (work-related) expectations, they report less psychological strain (Gilbreath, 2001). Supervisors can also play an important role in the formation of employee expectations. During hiring activities supervisors should help applicants develop realistic expectations about the organization and the rewards and challenges of working there. They should also explicitly discuss expectations periodically to prevent misunderstandings. Supervisors must be careful about what they imply and 'make good' on their promises. Evidently many supervisors don't appreciate the extent to which what they say can become an important expectation to employees, as revealed by many reports from

disgruntled employees about how what they were told at the time of hiring didn't pan out. The damage to the trust an employee may have had in the supervisor is difficult if not impossible to regain.

Progressing toward the Ego Ideal

Levinson and Weinbaum (1984) emphasize how the ego ideal affects employee well-being. They define the *ego ideal* as the '... internal image of oneself as one would ideally like to be' (p. 252). Garfield and Havens (1991) liken it to the 'North Star' (i.e., a guide point) for the psyche.

People whose life does not match up to their ego ideal will be unsatisfied with themselves and suffer a loss of self-esteem (Levinson & Weinbaum, 1984). Although empirical studies of the ideal self's effects on well-being are few and far between, a high ideal self-image has been found to be positively correlated with better educational performance, social adjustment in the classroom, and recovery after a life crisis (Bybee, Luthar, Zigler, & Merisca, 1997).

It is unreasonable to expect employees to meet the needs of their ego ideal exclusively outside of work. When employees' worklife differs from that demanded by their ego ideal, dissatisfaction and dejection are to be expected (Levinson & Weinbaum, 1984). Levinson and Weinbaum go so far as to regard a large disparity between actual and ideal selves as an indicator of psychopathology. In contrast, when the demands of the ego ideal are met, individuals are able to willingly contribute to the good of the organization (Levinson & Weinbaum, 1984).

From this psychoanalytic perspective, workplaces that allow people to move in the direction of their ego ideal are conducive to psychological health. The goal is to create jobs through which an employee can '... meet the requirements of his ego ideal by helping to attain the goals of the organization as a responsible, mature participant' (Levinson & Weinbaum, 1984, p. 254). This is similar to McGregor's (1960) Theory Y approach, in which organizations should aim to create '... conditions such that the members of the organization achieve their own goals *best* by directing their efforts toward the success of the enterprise' (p. 49). In this type of work situation, employees would soon realize that their ability to pursue personal growth within the organization will be limited by the *organization*'s health, because thriving organizations offer more opportunity to pursue personal needs than declining organizations beset by downsizing and budget cuts. Employees, therefore, have a vested interest in the success of their employer.

In some cases supervisors can help employees achieve their ideal self, and employees who indicate that their supervisor does so report better psychological well-being (Gilbreath, 2001). Helping employees move toward their ideal self will require a foundation of trust and mutual respect as well as an understanding of employees' hopes, aspirations, and wishes. Because

supervisors may have only a vague idea of employees' aspirations, employees could be encouraged to seek job assignments, training opportunities, and work designs that would meet both their needs and the needs of their organization. Related supervisor behaviors, such as supporting employees in seeking transfers and promotions that would benefit them personally, are associated with less job stress and psychiatric disturbance (Gilbreath, 2001).

For employees who don't have a clear ideal self-image, supervisors could facilitate career planning and vocational counseling and provide self-diagnostic career planning tools. Young adults tend to show the highest ideals and the greatest actual–ideal discrepancies (Ryff, 1991), so supervisors should recognize that young employees, in particular, may be struggling with actual–ideal self-discrepancies and may need appropriate social support.

Positive Morale

As noted by Johnson and Bledsoe (1973), morale is an imprecise construct, but a very important one. Although difficult to define, one way to think of morale is as a group-level affect. Morale is one indicator of the effect of a work environment on employees, and it is believed to affect how well a group can hold up under hardship. Good morale is likely to be contagious, helping to shield individuals in the work group from negative mental states. Some potential indicators of good morale include expressions of high job satisfaction, high organizational commitment, low turnover, and positive affect (Vandenberg, 1999). Moos (1988) believes morale tends to be better in workplaces where: the climate is cohesive, accepting, and oriented toward independence and autonomy; employees have meaningful and challenging tasks; supervisors are considerate, set clear goals, and encourage participation in decision-making; and things are well organized and unimpeded by bureaucratic policies.

Supervisors' attention to morale can be thought of as an effort to increase the hardiness of their work group. Some organizations are designating 'culture czars' responsible for keeping morale high (Culture Managers, 2001), but they only supplement the supervisor's critical effects on morale. As Hull and Kolstad (1942) noted, '. . . the worker who has the misfortune of being placed under a poor boss is not to be blamed if his morale is low despite whatever good intentions or fine paternalistic policies the top management of the company may have' (p. 363). This is because, as they expressed it, '. . . the immediate boss is a tremendously important factor in the determination of employee morale' (Hull & Kolstad, p. 357). Supervisors are in a position to monitor the morale of their work group, and they can influence it through their behavior. A supervisor who is a skilled leader will be able to build morale and maintain it during difficult times. Supervisors can frame events more or less optimistically, helping shape employee responses to stressful events. They can also build morale by recognizing and celebrating group

successes. Employees who say their supervisor does fun things to maintain morale report lower levels of job stress and psychiatric disturbance (Gilbreath, 2001). It must be acknowledged, however, that there is a limit to what supervisors can do to overcome morale-damaging circumstances. Low morale often points to poor leadership, and good supervision at lower levels in the organization can only partially compensate for poor leadership at the top.

Job Satisfaction

It would be an oversight to discuss psychologically healthy work without including job satisfaction. This is the extent to which people like or dislike their job (Spector, 1997). Working adults spend a large proportion of their waking hours on the job and, for many, job satisfaction is an important component of overall life satisfaction.

Many studies have found associations between health and job satisfaction (Jex, 1998). O'Driscoll and Beehr (1994) found job satisfaction to be negatively correlated with psychological strain and turnover intentions (i.e., plans to quit), prompting them to conclude that:

> despite criticisms and doubts which have been voiced by researchers about the salience of satisfaction as a predictor of work-related behaviors and reactions, there is accumulating evidence that this variable does make a significant contribution to the understanding of employee experiences and reactions (p. 152).

Keeping job satisfaction at a good level benefits both employees and employers, and low levels of satisfaction should be treated as a warning signal calling for investigation to identify problems that need to be addressed. Supervisors who stay in close touch with their employees can eliminate some sources of dissatisfaction before morale suffers. They can also enhance employee satisfaction by creating a positive work climate that makes work more enjoyable. For most employees, satisfaction with supervision will have an important effect on overall job satisfaction, and for many, it will be the critical factor.

Employees whose supervisor makes them feel like part of something useful, significant, and valuable tend to be more satisfied (Gilbreath, 2001). Others have noted the importance of inspiring employees in this way. According to Likert (1961), 'to be highly motivated, each member of the organization must feel that the organization's objectives are of significance and that his own particular task contributes in an indispensable manner to the organization's achievement of its objectives' (p. 103). Similarly, Emery and Thorsrud (1976) believed that, to meet the psychological needs of employees, a job must provide employees with a sense it contributes to social welfare in a meaningful way.

Obsessive Thinking, Entropy, and Rumination

Pfiffner (1958) warned against the risk of 'obsessive thinking' (p. 307) among employees who perform repetitive work that leaves them mentally idle:

> Most people who work have troubles, real or imaginary, domestic or vocational, about which they are prone to be anxious when their minds are not otherwise occupied. When they work at tasks that do not require constant attention, they will tend to mull over their troubles unless there are other factors in the work environment to attract their attention away from themselves (p. 307).

This is related to what Csikszentmihalyi (1990) says happens when we are left alone with no demands on our attention:

> With nothing to do, it [the mind] begins to follow random patterns, usually stopping to consider something painful or disturbing. Unless a person knows how to give order to his or her thoughts, attention will be attracted to whatever is most problematic at the moment: it will focus on some real or imaginary pain, on recent grudges or long-term frustrations. Entropy is the normal state of consciousness—a condition that is neither useful nor enjoyable (p. 119).

What Pfiffner (1958) calls obsessive thinking and Csikszentmihalyi (1990) calls entropy is similar to what psychologists refer to as 'ruminative activity.' When people ruminate about a problem or situation, they analyze it obsessively, mulling it over and over (Seligman, 1990). Rumination, which is thought to prolong the circulation of stress-related hormones in the human system (Fisher & Reason, 1988), can fuel depression in people who tend to be pessimistic (Seligman, 1990). One way to address ruminative activity is to create competing demands that attract attention away from the problematic thoughts (Fisher & Reason, 1988). Some people are able to do this for themselves, transforming what could be mind-numbing work into a more complex and engaging activity. They do this by seizing opportunities to take action and apply their skills, becoming more involved in their work (Csikszentmihalyi, 1990). Not everyone will be able to transform their job experience in that way, so a combination of making the job more engaging (e.g., through redesign) and teaching employees how to become more engaged in their work is likely to be more effective.

A Yale study of assembly line foremen found that they tried to counteract '. . . the monotony, the mechanization, and the impersonality of the conveyor and of the standardized task' through social interaction with employees (Walker et al., 1956, p. 21). These supervisors seem to have intuitively understood the value of distracting employees through social interaction.

The benefits of doing so haven't been studied much, though Beehr, King, and King (1990) studied communications between supervisors and employees as potential sources of social support. Their results suggest that, '... under conditions of high stress, supervisors might best be able to buffer subordinates from the harmful effects of occupational stress by using a distraction strategy' (p. 79). Supervisors should also be able to have positive effects on employees' thought patterns through efforts to reduce monotony by introducing challenge and variety into work. Supervisors could reduce rumination and entropy by enriching jobs and providing challenges and opportunities for personal growth. They can also do things to channel employees' thoughts in positive directions and promote social interaction that makes the workplace more tolerable. As Strauss (1977) puts it, 'a considerate supervisor makes even a boring job more tolerable' (p. 301).

Supportive Social Relations

Widespread interest among researchers in the positive effects of social relationships on well-being dates from the mid-1970s when associations between social support and physical health were noted (Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Since then, social support has been studied extensively. There are different types of social support, including *tangible* (i.e., instrumental) *support*, *appraisal support*, and *informational support*, but what commonly comes to mind when the term 'social support' is mentioned is *emotional support*, which includes providing sympathy, listening, and showing that you care (Beehr, 1995).

Social support can promote both mental and physical health. Higher levels of social support are associated with better cardiovascular, endocrine, and immune system function (Uchino et al., 1996), and higher levels of social support at work are related to lower levels of psychiatric disorder and sickness absence (Stansfeld, Rael, Head, Shipley, & Marmot, 1997). Manning et al. (1996) found that, for employees reporting high levels of psychological strain, doctors' office costs were 'considerably lower' (p. 745) for those with high social support than those with low social support. This suggests that social support may be especially important in terms of health outcomes when things are tough at work. It also indicates the potential for work-related psychosocial factors to affect health care expenses.

One of the key ways supervisors can build a psychologically healthy work environment is by being supportive (Duxbury, Armstrong, Drew, & Henly, 1984; Jones, Flynn, & Kelloway, 1995; Kirmeyer & Dougherty, 1988; Vine, 1998). A supportive style of supervision enhances employee well-being and helps protect employees from tension, depression, emotional exhaustion, and health complaints (Greller, Parsons, & Mitchell, 1992; Landeweerd & Boumans, 1994; Repetti, 1987). As Lu (1999) states:

> having a supportive supervisor at work can make all the difference in the world. Indeed, supervisors can supply necessary information and practical guidance, provide appreciation and recognition, decide promotion and pay increases, assign prestige and status, delegate control and power, etc. (p. 71).

Likert (1967) also recognized the supervisor's crucial role in creating supportive relationships and advocated supportive, ego-building leadership. Supervisors are in a position to provide employees with a variety of forms of social support. They can provide instrumental support such as eliminating or reducing the effects of negative work factors. For example, a supervisor may notice an employee is becoming distressed by a particular task and acquire equipment that makes the task easier to perform, reducing this source of stress. Pressure to meet an unreasonable deadline is stressful, but that source of stress can disappear if the supervisor acquires help to meet the deadline or moves the deadline back. Sometimes supervisors can make frustrating problems go away by providing informational support. A helpful suggestion from a supervisor, for example, can make a work task easier to perform.

Supervisors can provide emotional support by being empathic and caring. They can emotionally bolster employees who are having a difficult day by listening to and encouraging them. Employees who report that their supervisor provides support and encouragement indicate that they have less job stress and psychiatric disturbance (Gilbreath, 2001).

Considerate Interpersonal Relations

There are rules of behavior that, although tacit, guide interpersonal relations, promote civility, and protect people in social encounters from some of the slings and arrows of human existence mentioned by Shakespeare (Hornstein, 1996). When the rules are observed, people generally leave encounters with positive feelings about themselves, the other party, and the interaction (Hornstein, 1996). Incidences of rudeness and abuse, on the other hand, can leave recipients feeling angry and indignant, and it can take quite a while to restore psychological equilibrium.

Our expectation to be treated with civility and consideration does not cease when we report to work. Unfortunately, however, instances of abuse aren't uncommon. A recent British study (Hoel & Cooper, 2000) found that approximately one in ten people in their study sample reported having been bullied at work within the last six months. This is unfortunate, because those who had been bullied reported much higher levels of mental and physical ill health than those who hadn't experienced bullying (Hoel & Cooper, 2000).

The supervisor plays a major role in creating an atmosphere of consideration. Supervisors should set and enforce norms of civility within the work

group, and they shouldn't excuse rude behavior. They must take corrective action when necessary so that uncivil employees will find that acting in this way has undesirable consequences (Pearson, Andersson, & Porath, 2000). Employees with personality disorders (e.g., passive aggressive) whose behavior makes them punishing and disruptive to coworkers may ultimately have to be removed from the work group.

Although personal style can be masked during the hiring process, in some instances supervisors should be able to weed out job applicants who display or have a history of rude or abrasive interpersonal behavior. They should also communicate their expectations about interpersonal behavior to newly hired employees (Incivility in the Workplace, 2000).

Supervisor Behavior

Clearly there are a number of ways supervisors can make work environments healthier and enhance employee well-being. Thus far the focus has been predominantly on the indirect effects supervisors have on well-being through their influence on the work environment. The direct effects of supervisor behavior, however, should not be ignored. Differences among supervisors and their style of supervision can have major effects on employees' emotional well-being (Landy, 1992). One supervisor may be good at providing support and encouragement, while another, though technically competent, may foster a cold emotional climate. Some supervisors react punitively to even minor mistakes, while others treat mistakes as something to be remedied and then forgotten. While some supervisors push employees past their limits, others take appropriate measures when they observe signs of strain. Supervisors can shield employees from stresses and strains by protecting them from unpleasant occurrences, but, as many employees are quick to point out, some supervisors have negative effects on employee well-being. Employees working for supervisors who are too hard-driving or inconsiderate, for example, more frequently report that they are experiencing psychological strain (Seltzer & Numerof, 1988) and health problems (Ganster, Schaubroeck, Sime, & Mayes, 1990; Stout, 1984). Therefore, in addition to taking action against other stressors, supervisors need to monitor and manage their own behavior. Those who are unable or unwilling to do so should not supervise others.

A supervisor whose behavior effectively reduces the anxiety of employees essentially relieves them of the need for coping and frees their minds for more productive, enjoyable activities. Although some events are inherently stressful, often there are things supervisors can do to magnify or reduce the impact of the event. Even something as basic as how supervisors talk with employees may influence how well employees weather work-related stressors (Beehr et al., 1990). Consider an event where an abusive customer yells at an employee,

which all but the most hard-boiled of employees are likely to find stressful. A supervisor, however, could intervene and help to calm the customer down or at least support the employee during the incident. On the other hand, a supervisor could berate the employee in front of the customer and admonish the employee for not handling the situation to the customer's satisfaction.

Supervisor behavior takes on added importance because its effects may not be confined to the workplace. A stressful supervisor–employee incident in the afternoon is likely to be taken home, with the resultant frustration surfacing in interactions with family members and friends. The psychosocial consequences of such interactions can be injurious to relationships with family and friends. Over time, as relationships deteriorate, withdrawal of social support may significantly reduce buffering against stressors and result in increased strain and turnover among employees. Conversely, this cycle could be positive. A supportive supervisor may break the chain of stress at work and unpleasant consequences at home, resulting in the maintenance of systems of social support and resistance to stressors (Gilbreath & Frew, 1997).

The courts have recognized that supervisors can be held accountable for their effect on employee well-being. Hollis and Goodson (1989) studied legal trends related to stress and court cases in which employers were liable for the effects of occupational stress on employees. In one case an employer was held liable for an employee's disability when the employee, who was experiencing extraordinary stress at work, suffered a mental breakdown after abrupt and brusque criticism by a supervisor. These and other cases have established that supervisors are accountable for the effects of their behavior on employees. Hollis and Goodson advise that, because employees have individual, varying reactions to stress, supervisors '... must know their employees' (p. 258), meaning that supervisors must know their employees well enough to know their tolerance to stress. Supervisors must also monitor the work environment to identify problematic stressors and interact with individual employees regularly to monitor their stress level, hardiness, and coping ability. This may not be easy for busy supervisors who also are stressed. Nonetheless, protecting the safety of employees is a fundamental supervisory responsibility, and protecting employees from excessive stress is a component of this responsibility.

Given the potential effects of supervisors, it's not surprising that supervision is a recurring theme when employees talk about work factors that affect their well-being. As O'Driscoll and Beehr (1994) point out:

> in many respects, the supervisor is the most immediate and salient person in an individual's work context and is therefore most likely to represent the organization's culture or climate, as well as having a direct influence on subordinate behavior (p. 141).

It's not surprising, then, that many employees believe that supervisors can have direct effects on health and often have relevant incidents to share. An example of distressing supervisor behavior that is alleged to have affected the health of employees at the Denver Probation Department made the Associated Press wire service. Employees in the department claimed their boss was 'so mean that some of them fell ill with ailments such as chest pain and depression' (Shore, 1996, p. A20) and that they would sue the city unless it did something to eliminate the hostile work environment. Six of the supervisor's employees filed grievances and eight consulted physicians about what they said were work-related illnesses. One of the employees died while on medical leave. An autopsy concluded the employee died of undetermined natural causes, but coworkers believe there is a connection between the employee's death and how she was treated by the supervisor. While the validity of anecdotal scenarios like these is debatable, they are illustrative. The perception that supervisor behavior can cause health problems is widespread and accepted by many as common sense. Unfortunately, as Sparks, Faragher, and Cooper (2001) note, 'there are relatively few studies addressing the impact of negative management styles' (p. 501). The few that have been conducted, however, indicate that negative supervisor behavior can affect staff well-being. Among a sample of employees whose organizations had restructured, McCarthy, Sheehan, & Kearns (1995) found 'disturbing levels of inappropriately coercive managerial behaviours and evidence of their potential to degrade health and well-being and productivity ...' (p. 53). Tepper (2000) found that abusive supervision—not surprisingly—was associated with psychological distress.

Other studies have found strong associations between employees' self-reports of well-being and their perceptions of how considerate their supervisors are (Duxbury et al., 1984; Gavin & Kelley, 1978; Landeweerd & Boumans, 1994; Seltzer & Numerof, 1988; Sheridan & Vredenburgh, 1978; Stout, 1984). Similar results have been found for the degree to which supervisors use a participative style of supervision (Lind & Otte, 1994; Offermann & Hellmann, 1996). The supervisor's attitude and employees' satisfaction with it has even been found to be predictive of employee well-being (Tuomi et al., 1997). Although not yet explicitly recognized in the management literature, it is clear that positive supervision is a fundamental component of a psychologically healthy work climate. Let us now consider some research directions that could increase our understanding of the supervisor's role in creating a healthy workplace.

Avenues for Research

It would be helpful to know more about the relative strength of the supervisor's influence on employee well-being. How does it compare to the influence of social support, health practices, and stressful events, for

example? The literature indicates that supervisor behavior is likely to be comparable in its effects to those other, more extensively studied influences on well-being. If that is the case, supervisor behavior would become a primary candidate in efforts to improve psychosocial work conditions.

It would also be helpful to know the types of supervisor behavior that are most pertinent to employee well-being. Consideration is one example of supervisor behavior that is important to employee psychological well-being. Supervisory support (i.e., social support) is another. Those are two broad categories of supervisor behavior that probably explain a large amount of the variance in the supervisor's influence on employee well-being. However, there may be other types of supervisor behavior important for employee psychological well-being, which are still to be identified.

An alternative to identifying key types of supervisor behavior is to focus on behaviors that increase or reduce employee stress. From this perspective, good supervision would be about reducing the effect of non-supervisor stressors and minimizing supervisor-generated stress. This perspective would require a comprehensive orientation toward supervisor behavior rather than concentrating on a few key aspects of it. Research can help to determine whether a broader or more narrow focus on supervisor behavior is most useful.

More complete measures of supervisor behavior related to well-being are needed. Some fairly comprehensive measures of supervisor behavior presently exist. The Leader Behavior Description Questionnaire (LBDQ) is one of them. Typically one only hears about two of its subscales—consideration and initiation of structure—but the measure also includes ten other subscales. Though a venerable instrument, the LBDQ was not developed with employee well-being in mind. It might be useful to create a research-based, empirically tested instrument to measure supervisor behaviors related to employee well-being. Such an instrument could be useful in studies of the health effects of supervisor behavior as well as in organizational interventions to improve employee well-being.

It would be helpful to know the extent to which supervisor behavior is changeable. Once we understand what healthy supervision is, will we be able to shape supervisor behavior to fit that mould? There are undoubtedly a myriad of individual and organizational determinants of supervisor behavior. Will it be more effective to select people who will supervise in a healthy manner than to try to change the behavior of existing supervisors? An approach based purely on selection is probably unrealistic, so both selection and training/development approaches are needed. What techniques maximize positive behavior change among supervisors and reinforce or 'freeze' new patterns of behavior? Studies to determine answers to these questions will be needed to help organizations and supervisors make the necessary improvements and to make those improvements last.

Managers responsible for guiding for-profit organizations are focused on

their firm's competitiveness and success in the marketplace. When urged to promote employee well-being at work, a senior manager is likely to respond, 'That's all well and good, but what benefits will these efforts bring to the company?' Consequently, the senior manager's question (i.e., what will the return on the investment be?) must nearly always be addressed in the real world of business, with research required in order to answer it. Unfortunately, answering that question won't be easy. Furthermore, as research on utility analysis has shown, even when an answer has been calculated, it may not be convincing (Latham & Whyte, 1994)!

One of the more promising ways to address the question of returns to the organization will be by linking supervisor behavior to health care costs. Organizations are concerned about escalating health care costs, and ways of controlling these costs should be of interest. Other approaches are also necessary. Costs continue to increase and, so far, most organizations seem to be coping with this exclusively by reducing health insurance coverage and increasing employees' share of the costs of coverage. Although the fallout from this strategy is mostly yet to be seen, it has already provoked labor unrest (e.g., strikes) in some organizations. Links between supervision and health care costs, therefore, may be convincing reasons for senior managers to devote resources to supervisor selection and development.

As Sparks et al. (2001) note, supervisors under pressure often react by exhibiting a negative style of supervision. Less desirable aspects of behavior tend to escape, often only exacerbating a bad situation. An otherwise humane manager may (understandably) become less patient, empathic, and participative when under a great deal of stress. Supervisors can't be superhuman in the face of excessive stress, and it is important to investigate all contributors before concluding that someone exhibiting a negative style of supervision is wholly unfit for supervision. In some cases negative supervisor behavior may be more a function of a stressful work environment than a true representation of a supervisor's natural behavior pattern. Researchers can contribute by conducting studies of how supervisor behavior changes as stress levels fluctuate.

The preceding discussion suggests the need to create a psychologically healthy work environment for people at all levels in organizations. This means senior managers need to understand how much stress they're under, as well as the stress levels of lower-level managers and supervisors. Williams and Cooper (1999) talk about using dashboard indicators that provide information on how the organization's doing in terms of its psychosocial environment. These would be quite helpful in taking proactive action to contain stress at reasonable levels before health consequences make it obvious that something is wrong. Action research to learn how to implement and effectively use such indicators would be extremely useful.

Another avenue for research is the question of other (non-health) effects of healthy supervision. Questions to be addressed include, to what degree is

healthy supervision associated with changes in productivity or perceptions of supervisor effectiveness? If we create a cadre of supervisors who promote employee well-being, what effects will this have on organizational well-being? Does healthy supervision require that emphasis on the task be reduced? Or can both high productivity and employee well-being be achieved? Proponents of healthy work believe a psychologically healthy work environment, in the long-run, makes for a more effective organization, but research is needed to substantiate this. One sometimes encounters managers who see efforts to humanize the workplace as soft, inappropriate, ivory tower distractions from the work of the organization. Studies that make the array of benefits of humane supervision more concrete and convincing are needed.

Conclusion

The bottom line is this: good supervision is more than a 'nice to have.' Employees working for a supervisor perceived to frequently engage in positive practices and rarely in negative practices report having better psychological health (Gilbreath, 2001). Organizations need to step up to their responsibility for protecting employees from psychological harm in the workplace. One way they can do this is by recognizing supervision as a potentially important influence on employee well-being and making humane supervision a management expectation.

Broad-based initiatives to make work healthier should address supervision as well as other potentially important work factors. Involving supervisors in these initiatives will be important. As Pfiffner (1958) states, it is 'folly to think that the line organization can be humanized without securing the cooperation of supervisors on all levels. This must be an active and participative cooperation rather than merely a passive one' (p. 330). Jaffe (1995) points out, if individual supervisors don't appreciate the consequences of their behavior, then organizational policies and programs certainly won't bring about healthy workplaces. Supervisors must play a role in improving psychosocial working conditions.

Although their active support and buy-in is a necessity, supervisors may not be inclined to change their behavior or the work environment for several reasons. First, they may see negative psychosocial factors as risks that come with the job that employees should either cope with or find other employment (Daniels, 1996). Second, some health hazards, such as stress, also have positive aspects. Under certain conditions stress can enhance job performance as employees devote more attention and effort to their work (Zaccaro & Riley, 1987). Consequently, supervisors may view stress as a performance-enhancing, positive phenomenon. Third, the negative effects of stress are moderated by many factors and take time to become evident (Zaccaro & Riley, 1987). This obscures the causes and consequences of health-

threatening psychosocial factors, making it difficult for those who run organizations to realize the costs—monetary and human—of unhealthy work environments (Daniels, 1996). Finally, it's not easy to change one's ingrained pattern of behavior. Doing so will require a great deal of commitment by supervisors. Therefore, some persuasive education about associations between supervisor behavior (and other psychosocial conditions) and well-being and productivity should be part of interventions.

Once the need for health-enhancing changes in the workplace has been accepted, both individual- and organizational-level change efforts should be undertaken. At the individual level, supervisors could receive training and regular feedback that would help them increase their use of positive practices and reduce their use of negative practices. Feedback will have to be carefully given to motivate improvement and avoid defensiveness. Changes will be short-lived though, unless higher level managers also adopt positive practices and serve as good role models. Furthermore, they will need to show that they value supervisors' use of the good practices and disapprove of the negative practices. At the organizational level, a humane, supportive organizational climate and a culture that respects work–life balance could be consciously shaped. This would have positive effects on supervisors, giving them the psychological space to be supportive of, and considerate to, employees.

In conclusion, there are many organizational and individual factors with the potential to influence employee well-being, and supervisors can affect many of them. Because supervisors can ameliorate some of the negative work factors plaguing employees, they play a role in creating healthier workplaces. Supervisors can help organizations move beyond patching up employees damaged by unhealthy psychosocial conditions. They can change some conditions and moderate the effects of others, but they will need help and support. Researchers, industrial/organizational psychologists, managers, human resource development practitioners, and others will need to step up to the challenge and assist supervisors in doing so. Supervision is too important to be neglected in the efforts to make work healthier.

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Chapter 4

WORK EXPERIENCE: A REVIEW AND RESEARCH AGENDA

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Work experience is an important concept in industrial/organizational psychology and human resource management (HRM). It is central to activities such as personnel selection (e.g., Ash & Levine, 1985), compensation (e.g., Medoff & Abraham, 1980, 1981), development (e.g., Campion, Cheraskin, & Stevens, 1994; McCall, Lombardo, & Morrison, 1988), promotion (e.g., Olsen & Berger, 1983), downsizing (e.g., Gordon & Johnson, 1982), and training (e.g., Ford, Quiñones, Sego, & Sorra, 1992). A glance at any newspaper job section or an online employment board will confirm the almost universal acceptance of work experience as a critical and commonly accepted requirement for employment (e.g., Levine & Flory, 1975). Advancement opportunities are typically reserved for those with the right types of experience backgrounds. Labor contracts often make seniority a key factor in compensation and lay-off decisions (cf. Gordon & Johnson, 1982). Yet, despite the importance and widespread reliance on work experience for making numerous organizational decisions, it is only recently that researchers have begun to give this concept serious attention.

The purpose of this chapter is to review current developments in the work experience literature. Although a couple of recent articles have been published reviewing some aspects of work experience (cf. Quiñones, Ford, & Teachout, 1995; Sonnentag, 2000; Tesluk & Jacobs, 1998), a summary chapter encompassing a broad review of the topic has not been forthcoming. To that end, the contents of this chapter are organized in the following manner. First, an overview of recent conceptual models of work experience is presented. Second, meta-analytic findings related to work experience are summarized. Third, recent empirical studies linking work experience with a number of important organization outcomes are reviewed. Fourth, issues and challenges in learning from experience are presented. Finally, a research

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agenda highlighting gaps in our current knowledge concerning work experience is proposed.

MODELS OF WORK EXPERIENCE

Perhaps the single most important development in the work experience literature has been the introduction of conceptual and theoretical frameworks intended to guide research in this area. Rowe (1988) noted that researchers pay relatively little attention to the definition and measurement of work experience. Further, Campbell (1990) noted that a theory of experience had not yet been developed. As a result, studies have employed a variety of measures of work experience including time in an organization (e.g., McEnrue, 1988), tenure in an occupation (McDaniel, Schmidt, & Hunter, 1988b), number of times performing a task (e.g., Lance, Hedge, & Alley, 1989), and level of challenge in previous positions (e.g., McCall et al., 1988). These myriad measures are often referred to simply as experience.

As Quiñones et al. (1995) point out, it is unlikely that all these measures are tapping into the same underlying construct. For example, Ford et al. (1992) found large differences in the number and types of tasks being performed by individuals with the same length of service. DuBois and McKee (1994) found that measures of work experience tended to group into quantitative and qualitative dimensions. More recently, Goodwin and Ziegler (1998) found that a measure of variability of work experience was a better predictor of cognitive decision-making strategy than simply the amount of time spent in an organization.

Quiñones et al. (1995) proposed the first model of work experience based on a literature review of all studies examining the experience–performance linkage. Their model proposed that work experience measures could be classified along two dimensions. The first, *measurement mode*, refers to the specific aspect of experience measured. Three different modes are proposed including time, amount, and type. Time-based measures are the most common and include typical measures of job and organizational tenure. Amount-based measures are counts such as the number of times a person has performed a task or the number of jobs the person has held in the past. Type of experience represents the more qualitative nature of work experience such as the challenge and difficulty of an experience event.

The second dimension in the Quiñones et al. (1995) model, *level of specificity*, refers to the unit of reference for the experience measure (Kozlowski & Klein, 2000). Three levels of specificity are proposed in the model. These include task, job, and organization. The two dimensions combine to form a 3 by 3 matrix specifying nine different categories of experience measures. For example, a time-based measure could refer to the time spent performing a particular task, working in a particular job, or for a specific organization.

Similarly, a qualitative measure of experience such as level of challenge can apply to a task, job, or organization.

The Quiñones et al. (1995) model was the first to explicitly recognize the multifaceted nature of the experience construct. The implication of the model is that each separate measure of work experience captures a somewhat unique aspect of the constant stream of experience and may have different antecedents and consequences. The model also sets forth a common vocabulary that can help integrate future research in this area. The Quiñones et al. (1995) framework will be used to summarize the findings presented in this chapter.

Tesluk and Jacobs (1998) built on the Quiñones et al. (1995) framework and expanded it in several important ways. First, their model incorporated quantitative and qualitative dimensions of work experience into a concept they referred to as *density*. Second, the model takes into account the dynamic nature of work experience and its interaction with individual and contextual variables.

Finally, their model specifies a number of direct and indirect outcomes of work experience. In general, the Tesluk and Jacobs (1998) model represents the first attempt to develop a nomological network linking work experience with a number of antecedent and outcome variables.

More specifically, the Tesluk and Jacobs (1998) model maintains the three measurement modes of amount, time, and type proposed by Quiñones et al. (1995) and proposes two additional modes. The first, *density*, refers to the intensity of work experience and captures the amount of developmental impact present in that experience. Tesluk and Jacobs (1998) propose that high-density experiences are likely to have a disproportionately large impact on an individual's career trajectory due to increased learning, motivation, and performance. The second, *timing*, refers to when the experience occurs relative to other experiences within a person's career. They propose that the timing of an experience can determine its impact on a number of outcomes. As an example, Tesluk and Jacobs (1998) posit that feedback is much more effective if it immediately follows a challenging assignment.

In addition to proposing two new measurement modes, the Tesluk and Jacobs (1998) model adds work group and organization levels of specification. They propose that experience working in teams, for instance, is likely to have its own independent effect on teamwork and group process variables (cf. Griffith & Quiñones, 1999). Further differentiation of levels of specification will force researchers to ensure congruity between their measure of experience and outcomes. For example, task-level experience is more likely to predict task performance than organizational tenure (Quiñones et al., 1995).

Tesluk and Jacobs (1998) propose that individual difference factors such as abilities, motivation to learn, self-efficacy, and feedback seeking behaviors will influence the acquisition of work experiences and moderate the impact of these experiences on relevant outcomes. Similar effects are proposed for contextual influences such as societal factors, industry growth and

technology, corporate policies and practices, and the nature of supervision. Outcomes presented in the model are work motivation, knowledge and skills, work related outcomes, performance, and career development.

Together, the Quiñones et al. (1995) and Tesluk and Jacobs (1998) models represent a large leap forward in the development of a theory of work experience. They make explicit the fact that varied measures of work experience are not interchangeable. The multidimensional, multilevel and dynamic nature of the work experience construct is recognized and explicated. Only time will tell if these models move research in this area forward in the same way that conceptual models of job performance advanced research in that area (cf. Campbell, McCloy, Oppler, & Sager, 1993).

META-ANALYTIC FINDINGS

Several meta-analyses have investigated the relationship between work experience and job outcomes. In one of the earliest studies, Mosel (1952) found a mean correlation of 0.09 between training and experience (T&E) ratings and job performance. T&E ratings are evaluations of applicant resumes intended to predict future performance on the job. Different methods of arriving at T&E ratings exist including assigning points for the number of years of experience and training, ratings of experience with specific tasks, statements of past achievements by applicants, and job expert ratings of applicant knowledge, stall, and attitude (KSAs) based on previous experience and training (Ash, 1981). In a more comprehensive analysis of the validity of T&E ratings, McDaniel, Schmidt, and Hunter (1988a) found a mean corrected correlation of 0.17 between T&E ratings and job performance. They also found that the strength of this relationship varied as a function of the type of T&E rating method used with the behavioral consistency method resulting in the largest validities.

Hunter and Hunter (1984) examined the relationship between work experience, measured as tenure (a job-level, time-based measure), and various performance outcomes. They report a mean validity of 0.01 with training performance and 0.18 with proficiency ratings resulting in an overall validity of 0.15 between experience and performance. McDaniel et al. (1988b) defined experience as the number of months in the present occupation regardless of employer. This represents a time-based, occupational level of specificity measure. Their analysis of 947 correlations with a total sample size of 16,058 resulted in a mean corrected correlation of 0.32 between experience and performance. This relationship was moderated by length of experience and job complexity. Specifically, they found that the relationship between experience and performance was strongest for individuals with relatively low levels of experience performing low complexity jobs.

Schmidt, Hunter, and Outerbridge (1986) used path analysis with meta-analyzed correlations to examine the independent effects of experience and job knowledge on job performance. Data from four military samples showed that the relationship between experience (measured as months in the current job) and performance was mediated by job knowledge. Specifically, the path between experience and knowledge was 0.57 compared to 0.18 for experience and work sample performance. These results suggest that at least time-based experience measures have their effect on performance through the accumulation of job-relevant knowledge.

Quiñones et al. (1995) conducted a meta-analysis of all studies examining the relationship between experience and performance. Their study used the 3 by 3 conceptual framework developed in the same manuscript to categorize previous studies according to the specific measure of experience used. The overall results based on 44 correlation coefficients and a total sample size of 25,911 revealed an estimated population correlation of 0.27 between all measures of experience and performance. When the results were broken down according to measurement mode, the estimated population correlations were 0.43 for amount-based, 0.27 for time-based, and 0.21 for type-based measures. In terms of level of specificity, task-level measures had the strongest relationship with performance (0.41) followed by job-level (0.22) and organization-level (0.16). In addition, the relationship between experience and performance was stronger for hard performance measures such as production records or sales (0.34) than soft measures such as supervisory ratings (0.24).

Mathieu and Zajac (1990) examined the relationship between tenure (position and organization) and organizational commitment. These two measures of experience represent time-based job- and organization-level measures according to the Quiñones et al. (1995) framework. Results of their analyses showed that the type of commitment and experience measure used moderated the relationship between experience and commitment. Specifically, they found a stronger relationship between position tenure and attitudinal commitment (0.152) than calculative commitment (0.025). Conversely, organizational tenure was more strongly related with calculative commitment (0.200) than attitudinal commitment (0.153). The authors argue that as individuals spend more time in an organization, they become more invested through things such as pensions plans (calculative commitment). However, time spent in a position increases their attachment to colleagues and membership in the organization (attitudinal commitment).

Taken together, the results of meta-analytic studies examining work experience support the multidimensional nature of the construct. The extent to which work experience correlates with organizational variables has been shown to depend on the specific measure of work experience used. It is also clear that work experience is significantly and positively related to performance and commitment across a number of jobs and a

variety of settings. Also, the experience–performance relationship is positive regardless of the type of performance measure used. This evidence supports the widespread use of the construct as a criteria for selection into organizations.

In addition to these meta-analytic findings, there are a number of other studies that have examined the role of experience on work related outcomes. The sections that follow summarize this research and point out areas that are still in need of further research attention. The studies are categorized according to the outcome variable examined. Specifically, the studies reviewed below examine work experience and job knowledge, leadership, and team performance. In addition, studies investigating the role of work experience in the applicant rating process are also reviewed. As before, the terminology developed in recent frameworks of work experience is used to describe the specific measures used.

ADDITIONAL EMPIRICAL FINDINGS

The meta-analytic studies described above have established solid evidence for the validity of work experience in predicting job performance. Additionally, they begin to provide support for a more sophisticated model of work experience that recognizes the multidimensional nature of the construct. However, one significant drawback of these studies lies in their reliance on simple bivariate relationships between experience and the outcome of interest. Thus, the extent to which separate measures of work experiences provide incremental and/or unique explanatory power cannot be examined. Some of the studies described below address this limitation by examining multiple measures of experience and their relationships with the outcome of interest.

Job Knowledge

Schmidt et al. (1986) established one of the mechanisms by which experience leads to improved job performance. Their study found that work experience is related to the accumulation of job-relevant knowledge that, in turn, leads to better job performance. However, it is unlikely that the simple accumulation of time on the job is all that is required to acquire more job knowledge. Longoria and Quiñones (1998) posited that the specific tasks performed (amount-based, task-level experience) and not the passage of time will determine how much job knowledge a person accrues. However, since being on the job for a longer period of time allows for more opportunities to accumulate task-level experiences, it is not surprising that time on the job had previously been found to have a positive relationship with job knowledge.

In their study of US Air Force mechanics, Longoria and Quiñones (1998) obtained two measures of experience including time on the job and number of times performing core job tasks. They also collected measures of job knowledge, cognitive ability, and difficulty ratings of tasks performed. They found that the number of times core job tasks here performed had a positive relationship with job knowledge after accounting for differences in job tenure. Furthermore, the study found significant interactions between task experience and cognitive ability as well as task experience and task difficulty. Specifically, they found that task experience had a stronger relationship with job knowledge for individuals with high levels of cognitive ability. They also found that task experience was more positively related to job knowledge when performing difficult and challenging tasks.

The results of Longoria and Quiñones (1998) contrast with those of Schmidt, Hunter, Outerbridge, and Goff (1988) who failed to find a significant interaction between experience and cognitive ability in predicting job knowledge. The most likely explanation for the divergent results is the measure of experience used in each of the two studies. The Schmidt et al. (1988b) study measured experience as the number of months in a specific job. On the other hand, the Longoria and Quiñones (1998) study used the number of times a specific task was performed as their measure of experience. These conflicting findings further highlight the need for a theory of work experience that can be used to make specific predictions concerning the relationships between various measures of work experience and outcomes of interest.

Leadership

In a review of the relationship between leader experience and performance, Fiedler (1970) found a mean correlation of 0.12 between years of organizational service (time-based, organization-level measure) and leader performance. This finding prompted Fiedler to suggest that the hypothesized link between leader experience and performance had been 'shot to hell.' However, a study by Pfeffer and Davis-Blake (1986) found that, for newly hired NBA coaches, there was a positive relationship between a coach's experience and their team's performance. Interestingly, the relationship between coach experience and team performance was not present for coaches that were continuing with the same team. Similarly, Canella and Rowe (1995) found that previous experience as a baseball manager predicted team performance.

Several authors have noted the potential inadequacy of general tenure-based measures of experience for predicting leader performance. For example, Bettin and Kennedy (1990) found that the number and relevance of a leader's experience predicted leader performance above and beyond tenure (time)-based measures. Similarly, Locke et al. (1999) and Gabarro

(1987) have suggested that relevant experience accumulated in a particular industry or organization is critical for leader success. Avery, Tonidandel, Griffith, and Quiñones (2003) extended this line of research to include experience in the subordinate's job and experience in high stress situations (see also Feidler & Link, 1994; Potter & Fiedler, 1981). Their results showed that each measure of leader experience predicted unique amounts of team performance. Taken together, these studies are consistent with the view of work experience as a multidimensional construct and extend these findings to the leadership domain.

A study by White, Tansey, and Smith (1994) sought to examine the effects of leader (CEO) experience on a more macro-organizational outcome. They posited, and found, that a CEO's previous experience was related to the adopted strategy of the corporation. Specifically, the results of their study showed that a CEO is likely to adopt a strategy that is consistent with their previous experience. For example, a CEO with experience in a single industry will adopt a single and vertically integrated strategy. Conversely, CEOs with experience with multiple industries move their corporations towards an unrelated conglomerate strategy.

In a similar vein, Waller, Huber, and Glick (1995) examined the extent to which executives' functional background (a type-based, job-level experience measure) influenced the perception of environmental (e.g., competitors, regulations, unions, suppliers, and labor markets) and organizational effectiveness (e.g., internal processes and human relations) changes. Their results showed that functional background was not related to the number and type of environmental changes perceived by executives. However, there was a significant relationship between executive functional background and the types of organizational effectiveness changes perceived by the executives. These effects were found even after controlling for an executive's tenure. These results are consistent with those of Goodwin and Ziegler (1998) where variety of work experience (amount-based, job-level experience) and not total years of experience was found to influence the number of script tracks available during a decision-making task.

Tharenou, Latimer, and Conroy (1994) examined the effect of work experience on the managerial advancement of men and women. Their study found that the amount of training given led to more significant advancement among men than women. Work experience, in this case number of years of full time work in the present occupation, was significantly related to the amount of training accumulated. Again, this relationship was stronger for men than women.

Another line of research shows that work experience can have an impact on how individuals handle conflicts and disputes. Drory and Ritov (1997), for example, found that only individuals with some organizational work experience adapted their conflict management style in response to their opponent's relative level of power. Similarly, Karambayya, Brett, and Lytle (1992) found

that high levels of supervisory experience influenced the dispute resolution style among third parties in a dispute resolution paradigm.

Taken together these studies highlight the importance of work experience in a leadership context. Not only does experience influence the performance of a leader, but also their cognitions and organization's outcomes. In this area of research, more than any other, the specific experience measure used seems to make a large difference. Studies consistently show that some measures of experience seem to make very little difference (such as overall tenure) while others have a substantial impact on leader behavior and performance (functional background and experience relevance). However, the exact mechanism by which various measures of experience lead to success in leadership positions is still an under-researched topic.

Team Performance

There are a number of theoretical perspectives that point to a link between team experience and performance. For example, the concept of shared mental models suggests that as teams gain experience, they will come to share a common understanding of task requirements (Cannon-Bowers, Salas, and Converse, 1990). Additionally, teams have been shown to possess a sense of collective efficacy that can influence their performance (Feltz & Lirgg, 1998; Mischel & Northcraft, 1997). Collective efficacy refers to a team's assessment of their capacity to perform at a given level of performance and can be influenced by their previous experiences (Prussia & Kinicki, 1996). Gersick's research (e.g., 1988, 1989), documents the changes that teams undergo as they gain experience. Taken together, these perspectives suggest that team experience should be related to team performance.

The empirical literature linking team experience with performance, however, reveals mixed findings. A study of coal mining crews by Goodman and Leyden (1991) found a positive relationship between experience and productivity. Similarly, Michaelson and Sharp (1991) found that groups increased their decision-making effectiveness as they spent more time together. In addition, research by Ginnet (1990) shows that even complete strangers working together for a short amount of time can become a highly effective team.

There are, however, a number of studies with opposite findings. For example, a study by Stein (1982) found that creativity and decision-making ability was lower for older groups. Similarly, Katz (1982) found that group performance declined after approximately four years following an initial increase. Janis (1972) proposed the concept of 'groupthink' to describe the decrease in decision-making ability that arises from highly cohesive groups that have a lot of experience together.

Griffith and Quiñones (1999) proposed a number of reasons for this apparent lack of consistency in this area of research. These included (1)

the use of laboratory versus field settings, (2) the use of intact versus *ad hoc* groups, (3) the duration of team interaction, (4) the level of interdependence required to perform the task, and (5) the measurement of team experience. Most relevant for the current discussion is this final issue.

In their study, Griffith and Quiñones (1999) proposed two unique and distinct measures of team experience that were hypothesized to influence different aspects of team performance. Using data from 29 NBA teams during the 1996–1997 regular season, they calculated one measure of team experience by averaging the number of minutes that each core player had played in the NBA. This measure reflected the aggregate individual experience possessed by the team. The second measure consisted of the total number of minutes that these core players had played together in the same team. This measure captured what they referred to as shared experience.

The results of their study showed that, holding shared team experience constant, the aggregate individual experience measure was related to aspects of team performance requiring little coordination such as free throw percentage. Shared experience, on the other hand, was significantly related to components of team performance such as wins, points scored, and field goal percentage, after accounting for differences in aggregate individual experience. These team performance components require a substantial amount of coordination among group members. Thus, it appears that different aspects of team experience are likely to have unique relationships with team performance. The critical factor appears to be the extent to which team performance requires coordination and other team skills. It is possible that shared experience aids in the development of shared mental models that may lead to improved team performance.

Applicant Rating Process

There is a large body of research examining the relative influence of various job applicant characteristics on ratings by students and managers. Some of these studies have focused on demographic characteristics such as sex and race (Dipboye, Fromkin, & Wiback, 1975; Fusilier & Hitt, 1983; Hitt & Barr, 1989). Others, however, have focused on more job-relevant characteristics such as academic qualifications, vocational interest, and work experience (Barr & Hitt, 1986; Hakel, Dobmeyer, & Dunnette, 1970; Singer & Bruhns, 1991).

Fusilier & Hitt (1983) asked students to evaluate a hypothetical applicant on the basis of age, race, sex, and years of experience. Experience had the strongest influence on job applicant evaluations and the interaction between experience and age was statistically significant. Older applicants with no experience were rated less favorably than younger applicants lacking experience. Students and professional interviewers examined applicants in a study by Barr and Hitt (1986). Using a policy-capturing approach, Barr and Hitt

found that the professional interviewers used fewer factors in their decision models and their models explained more of the variance in applicant favorability than the student models. Experience, measured in terms of years, was a statistically significant predictor of overall applicant favorability ratings in selection decision models of both professional interviewers and students.

In a study of managerial decision-making by Hitt & Barr (1989), work experience, along with race and sex, had a significant main effect on overall applicant favorability ratings and a number of two- and three-way interactions suggested that ratings were based on complex decision models that took into account various cue configurations. Singer and Bruhns (1991) used student and professional samples to examine the effect of work experience and academic qualifications on three selection decisions: suitability, success, and hire. For managers, the effect of work experience was consistently greater than the effect of academic qualifications. For students, the effect of academic qualifications was greater than the effect of work experience.

Adams and Quiñones (2000) extended this line of research by examining the relative impact of three of the dimensions of experience proposed by Quiñones et al. (1995). Study participants (undergraduates, MBAs and campus recruiters) rated resumes of fictitious applicants for a computer programmer position on several dimensions such as likelihood of hire, work experience, job knowledge, and motivation. Applicants varied in the number of years of programmer experience (job-level, time-based experience), the number of projects previously worked on (task-level, amount-based experience) and the complexity of these projects (task-level, type-based experience). Results of policy capturing analyses showed that participants relied on an average of 2 experience dimensions to rate applicants. In addition, some raters demonstrated complex decision processes that relied on interactions among the various dimensions of work experience.

The studies on rater evaluations confirm the importance placed on work experience among raters of job applicants. Experience consistently ranks among the top dimensions influencing applicant ratings. These results have also been demonstrated using a number of rater populations such as students and recruiters. The results of the Adams and Quiñones (2000) study also demonstrate that raters do not define work experience as simply the number of years an individual has worked in a job. In fact, raters are able to differentiate and make use of several dimensions in combination when making ratings of job applicants. This lends further support for the multidimensional nature of the work experience construct.

LEARNING FROM WORK EXPERIENCE

Learning in organizations takes place through formal and informal methods. Formal methods include training and development activities where the

content is explicitly identified and the objectives to be achieved are made clear to the learner (cf. Goldstein & Ford, 2002). Although substantial amounts of money are spent each year on formal training, research demonstrates that most learning in organizations takes place informally through work experiences (Lowy, Kelleher, & Finestone, 1986; Wick, 1989). However, the biggest challenge is in turning work experiences into learning opportunities. Some have noted the inherent difficulties in learning from experience (e.g., Feldman, 1986). More recently, however, new theories and methods for increasing the developmental aspects of work experience have begun to surface. Below is a brief overview of these recent developments.

Identifying Development Opportunities

Most managers and executives are able to point to key experiences in their career that were critical for their development (McCall et al., 1988). Ideally, however, one would like to know which experiences pack the most developmental 'punch' prior to choosing or receiving an assignment (Tesluk & Jacobs, 1998). McCauley, Ruderman, Ohlott, and Morrow (1994) report their development of the Developmental Challenge Profile (DCP) as a way to address this need. The DCP identifies challenging situations that provide opportunities for learning and the motivation to do so. Examples of experiences with development potential are job transitions, high levels of responsibility, non-authority relationships, and obstacles. Initial validity evidence for the DCP looks promising, as scores on the instrument have been found to correlate with self-reported learning in the workplace.

Identifying Lessons to be Learned

Unlike formal training programs, it is not always clear what lessons an individual is supposed to learn from a given experience. However, little learning is likely to take place if individuals are not aware of the development potential in a new job assignment (Ohlott, 1998). To address this issue, McCall et al. (1988) report on the results of interviews with 191 successful executives in 6 major corporations who were asked to describe various experiences and the subsequent lessons they provided. For example, potential lessons from early work experiences include developing strategic thinking, getting people to implement solutions, being tough when necessary, and coping with ambiguous situations. Career setbacks can teach individuals how to handle political situations, persevere through adversity, identify personal limits and blind spots, and cope with situations beyond their control. This and other lessons learned from a number of experience events can help sensitize individuals to a variety of development opportunities.

Providing Opportunities for Feedback

Feedback or knowledge of results is an essential element of formal training programs (Goldstein & Ford, 2002). Unfortunately, everyday work experiences often lack the feedback necessary to maximize learning. Without feedback, one is not able to compare their behavior to a standard and make corrections that result in learning (Feldman, 1986). Two methods that can greatly enhance the amount of feedback derived from an experience include mentoring and coaching (see Day, 2001). Mentors and coaches can be a great source of non-threatening and honest feedback that individuals can incorporate into their experience. A critical aspect of any feedback, however, is that it must be credible and accepted if it is to have any effect on subsequent performance (Nease, Mudgett, & Quiñones, 1999).

Individual Differences

As the research by Longoria and Quiñones (1998) demonstrates, work experience is likely to have a disparate impact on knowledge acquisition depending on a number of individual characteristics. In addition to cognitive ability, other individual factors that are likely to influence how much one learns from experience are self-efficacy, openness to experience, and conscientiousness (Velsor & Guthrie, 1998). Although it is known that these factors lead to improved learning, it is still unclear how different experiences interact with each of these factors to maximize learning. For example, it is likely that a certain (specific) experience is ideal for a person with low self-efficacy because it allows for a slow progression with plenty of opportunities to establish success. On the other hand, a highly uncertain and challenging experience might be ideal for a person with high self-efficacy.

A RESEARCH AGENDA

A substantial amount of progress has been made over the last decade or so in our understanding of the nature and correlates of work experience. However, it is clear that a lot of work still remains. Research has only scratched the surface of a construct that still receives only minimal theoretical background and methodological explanation in most research articles. Future research needs are described below and grouped into three broad categories including research into the nature of the work experience construct, outcomes, and antecedent of work experience.

The Work Experience Construct

The Quiñones et al. (1995) and Tesluk and Jacobs (1998) models provide useful starting points towards the development of a nomological net of work

experience measures. However, most research studies rely on one or perhaps two measures of work experience so it is difficult to examine the interrelationships among multiple measures. It is unlikely, however, that the relationships among experience measures are simple and static. For example, the relationship between organizational tenure and the type of tasks performed will depend on a number of individual and organizational factors. Additionally, the relationship is likely to change over time. Therefore, what the field needs is not just a collection of correlations to be meta-analyzed but also a true theory of work experience. Such a theory would spell out the complex and dynamic interrelationships among experience measures including the contextual factors that influence these relationships.

A theory of work experience would also address within- and cross-level issues (Kozlowski & Klein, 2000). The Griffith and Quiñones (1999) study demonstrates that aggregate individual team members' experience, and shared experience are not necessarily the same thing. Such issues of cross-level isomorphism need to be addressed with sophisticated composition models of work experience measures. Only then will researchers begin to realize that convenient measures are not always the most appropriate ones.

Outcomes of Work Experience

Individuals spend most of their adult lives at work. As a result, their experiences during work are likely to have profound effects on many aspects of their character and identity. An interesting article by Roberts (1997) highlights the need to expand the outcome variables examined in this line of research. His study found that work experience had a substantial impact on the personalities of working women from ages 27 to 43. Dollard and Winefield (1998) reached a similar conclusion when they found effects suggestive of long-term impacts on the personality evolution of corrections officers as a result of their work experiences. Given the centrality of work, it is clear that experiences at work will have a number of other far-reaching consequences that are only beginning to be examined.

The relationships between measures of work experience and more traditional outcome measures are also likely to be more complex than current models would suggest. For instance, Medoff and Abraham (1980) cast some doubt on a key assumption of human capital theory linking experience with earnings. Similarly, Gwartney-Gibbs (1988) challenged the 'rusty skills hypothesis' derived from human capital theory predicting a penalty on women's earnings as a result of being out of the labor market and, therefore, accumulating less work experience. They found that time out of the labor force, and intermittency of work experience are distinct concepts in predicting women's earnings.

Cross-level issues are also important in linking experience with organizational outcomes. As Quiñones et al. (1995) and Tesluk and Jacobs (1998)

point out, measures of experience are likely to have their strongest impact on outcome variables at the same level of analysis. Additionally, the relationships between work experience measures and outcomes at different levels of analyses are unlikely to be similar in form and strength. Unfortunately, previous studies have paid little attention to these levels of analyses issues when choosing the measure of experience. As such, drawing general conclusions from the research literature becomes very difficult.

Finally, the number of outcomes of work experience examined by previous research has been limited. This problem is exacerbated by the fact that experience is seldom the primary variable of interest in most studies measuring work experience. As a consequence, little theoretical development concerning its hypothesized relationship with the outcome is presented. Some avenues for future research include the effects of work experience on socialization (e.g., Adkins, 1995), organizational citizenship behavior (Motowidlo & Van Scotter, 1994), hiring decisions (e.g., Wade & Kinicki, 1997), and perceptions of fit within jobs and organizations (e.g., Kristof-Brown, Jansen, & Colbert, 2002). This field is wide open and early studies in these areas are likely to have an immediate and lasting impact.

Antecedents of Work Experience

We know very little about the factors that lead to differences in work experience. For example, Schmitt and Cohen (1989) reported sex and race differences in the number and type of tasks performed by mid-level managers in three Civil Service occupations. Ford et al. (1992) found that individual- and organizational-level factors were related to task- and job-level experience differences among a group of Air Force mechanics. However, these and other studies have failed to examine the mechanism by which these differences in experience come about. Since work experiences can be either assigned or chosen, the factors influencing each of these processes are likely to be drastically different. Factors such as stereotyping and discrimination should play a larger role in the assignment process. Self-efficacy, locus of control, and motivational differences are more likely to play a role in an individual's experience choices. Tightly controlled lab or field experiments are needed to help isolate the effects of assignment and choice in the work experience accumulation process.

CONCLUSIONS

The fields of industrial and organizational psychology and HRM have tended to take the construct of work experience for granted. The attitude among researchers has been that work experience is a simple and straightforward concept and that any measure approximating their unwritten definition of it

will suffice. There is real hope that recent theoretical and empirical advances in research on work experience will finally bring respect to this oft-neglected construct.

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Chapter 5

WORKPLACE EXPERIENCES OF LESBIAN AND GAY EMPLOYEES: A REVIEW OF CURRENT RESEARCH

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As the workforce becomes more diverse, organizations whose policies aim to serve only the 'average' worker will find themselves out of step with the needs of an increasing proportion of their employees (Jamieson & O'Mara, 1991). The assumption that all organizational members share the same set of social and individual characteristics must be abandoned lest outmoded policies and practices undermine the motivation and productivity of those who fall outside of the norm. Thomas (1990) advises corporate America to move beyond the simplistic notion that the solution to organizations' diversity challenges lies with the implementation of affirmative action policies. Instead, they must move toward affirming diversity as a positive force in today's business climate. He suggested that the challenge has shifted from admitting women and racial minorities into the organization to fully developing and utilizing the skills of every individual in the workforce. Only in this way can the productivity of a heterogeneous workforce match and surpass the productivity of a homogeneous workforce.

In order to meet the challenge posed by Thomas (1990), treatment discrimination based on employees' immutable, job-irrelevant characteristics must be addressed and eliminated (Greenhaus, Parasuraman, & Wormley, 1990). Moving beyond the consideration of only access discrimination, which prevents members of a particular group from entering a job or an organization, treatment discrimination has been identified as occurring when

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members of a particular social group receive fewer rewards, resources, or opportunities on the job than they legitimately deserve. Treatment discrimination can affect tangible phenomena such as the allocation of work assignments, training opportunities, and salary increases. It also influences more subtle factors such as acceptance into a work group, the availability of support from supervisors, and the degree of discretion permitted in job activities (Burke, 1991; Ilgen & Youtz, 1986). Consequently, those who are exposed to treatment discrimination encounter organizational experiences that are less favorable than those who are not so exposed.

Not surprisingly, treatment discrimination is most often experienced by the members of socially disadvantaged groups. In the context of the workplace, these groups have typically been identified by researchers as women and racial minorities. But these are not the only employees that may experience discrimination. Gay men, lesbian women, and bisexual employees constitute another social group whose members may experience disparate treatment (Herek, 1998). However, although recent estimates suggest that lesbian and gay employees constitute a sizable minority group within the workforce (between 4% and 17%; Gonsiorek & Weinrich, 1991), we know far less about their experiences than we do about those of other minority groups in the workforce.

There is clearly a need for research-based understanding of this group: a growing number of organizations have begun to recognize and address the concerns of their lesbian and gay employees (Baker, Strub, & Henning, 1995; Mickens, 1994; Winfeld & Spielman, 1995). The purpose of this chapter is to review the growing body of theory-based research on the experiences of gay and lesbian employees and to highlight directions for future research. The overarching goal of the review is to encourage and inform new research in this area and to enrich the study of workforce diversity as a whole.

THE SOCIAL AND ORGANIZATIONAL CONTEXT EXPERIENCED BY GAY AND LESBIAN EMPLOYEES

Discrimination, harassment, and other forms of disparate treatment based on sexual orientation are a reality for many gay and lesbian employees (Croteau, 1996). These behaviors, like all organizational behaviors, do not occur in a vacuum. They are manifest within a context provided by the organization, community, and society in which the behavior is embedded. For this reason, we begin with a brief review of contextual factors, or characteristics, at each of these hierarchical levels.

Community Characteristics

There is no federal protection against employment discrimination based on sexual orientation for citizens of the USA (Human Rights Campaign, 2003). Only 14 states, along with the District of Columbia, have legislation that protects gay and lesbian workers from discrimination. Because of the sporadic protection that exists in the USA, a large number of lesbians and gays work in jurisdictions where they can be legally fired, demoted, or passed over for promotion simply because they are identified as gay or lesbian. Moreover, only a handful of countries around the world currently protect their gay and lesbian citizens from discrimination through legislation or executive order at the national level, or have such protective mechanisms slated to take effect in the near future. Examples of countries with current or pending national legislation include several member states of the European Union, South Africa, Canada, and a small number of other countries around the globe (International Lesbian and Gay Association, 2003).

Organizational Characteristics

Many organizations have recognized the need to build a more affirming climate for gay and lesbian employees. To this end, organizations have incorporated sexual orientation into formal non-discrimination policies, addressed gay and lesbian issues in diversity programs, officially recognized gay and lesbian employee groups, and begun to offer domestic partnership benefits (Baker et al., 1995; Kronenberger, 1991; Mickens, 1994; Stewart, 1991; Woods, 1993; Winfeld & Speilman, 1995). Indeed, policies of this kind are becoming more common than ever. Recent information from the Human Rights Campaign (2002) reveals that approximately 60% of the Fortune 500 companies include sexual orientation in their non-discrimination policies. Thirty-four percent of these companies have also elected to extend health and other benefits to the domestic partners of their gay and lesbian employees. There are, however, organizations that have not taken steps to recognize and affirm the existence of sexual diversity in the workforce. These organizations do not include sexual orientation in their non-discrimination policy, institute inclusive diversity programs, nor grant equal access to benefits (Baker et al., 1995; Mickens, 1994; Winfeld & Speilman, 1995). Indeed, some organizations may tacitly permit the dismissal of employees identified as lesbian or gay.

Societal Characteristics

The prevailing attitudes toward sexual minorities in the USA are still quite negative. Forty-three percent of respondents to a Gallup pole conducted in

2002 reported believing that homosexual relations between consenting adults should not be legal, and 44% indicated that homosexuality should not be considered an acceptable alternative lifestyle (Newport, 2002). Attitudes toward workplace equality and non-discrimination are more positive, with one study revealing that 65% of heterosexual men and 81% of heterosexual women support the passing of a law prohibiting employment discrimination based on sexual orientation (Herek, 2002).

The full range of negative attitudes toward gay males and lesbians are complex in nature (Kite & Whitley, 1996; Millham, San Miguel, & Kellogg, 1976). Past research has demonstrated that such attitudes are related to social, religious, and environmental factors (see Herek, 1984; 1991, 2000, for more detailed reviews). For example, negative feelings toward homosexuals are stronger among men, (Herek, 2002; Kite & Whitley, 1996), among those who endorse traditional views of gender roles and gender expression (Harry, 1995; Krulewitz & Nash, 1980), those who are members of socially conservative religions (Agnew, Thompson, Smith, Gromzow, & Curry, 1993; Fisher, Derison, Polley, Cadman, & Johnston, 1994), and among those who have never had personal relationships with gay or lesbian individuals (Herek & Capitanio, 1996). The kinds of negative attitudes range from stereotypes of gay men and lesbians as expressing deviant gender-related behaviors and characteristics (Taylor, 1983), to moral reprehension as expressed through agreement with such statements as 'male homosexuality is disgusting' (Herek, 1994).

The term 'homophobia' was coined to describe the fear of being in close proximity to the members of this group (Weinberg, 1972). However, given that the full breadth of the negative feelings that persist about gays and lesbians extend beyond fear, homophobia has increasingly been regarded as a limited term. Instead, 'heterosexism' has been defined more generally 'as a term analogous to sexism and racism, describing an ideological system that casts homosexuality as inferior to heterosexuality' (Herek, 2000, p. 19). This term incorporates the notion that heterosexuality is accorded more privilege than homosexuality in our society, and thus contributes to the stigmatization of non-heterosexuals in public discourse (Waldo, 1999). Because of the more general nature of this term and its relevance to organizational culture and the workplace experiences of gay and lesbian employees, it is increasingly used in lieu of the more traditional term 'homophobia' in sexual orientation research.

Regardless of their etiology, the negative attitudes that persist about gay and lesbian individuals can be harmful. Research shows that stigmatization based on group membership can encourage a host of negative outcomes in life experiences (Crocker & Major, 1989). But these ramifications can be especially damaging in the workplace. Workplace decisions are ideally based on objective criteria such as work productivity and effectiveness (e.g., Gilliland, 1993; Ilgen, Barnes-Farrell, & McKellin, 1993). As we

know from research on sex and race-bias, however, subjective factors such as perceived similarity and affective attachment can hold sway over how such decisions are made (Dovidio, Gaertner, & Bachman, 2001; Powell, 1999). When these subjective factors are overwhelmingly negative with regard to one's group membership, work-related rewards and resources are apt to be withheld from the members of that group (Sackett, DuBoi, & Noe, 1991).

Overview

Research evidence suggests that disparate treatment at the organizational, community, and societal levels are legitimate concerns for gay and lesbian individuals in the workplace. Many of them have experienced, or fear experiencing, treatment that is different from their heterosexual peers based solely on their sexual orientation (Croteau, 1996). The goal of the current chapter is to review this research in order to understand the nature of these experiences, the conditions that regulate or influence them, and their outcomes or consequences.[1]

Workplace studies that target this population have largely focused on four dependent measures: organizational climate for sexual minorities, disclosure of sexual orientation at work, actual or perceived discrimination, and attitudes toward their jobs and organizations. Increasingly complex hypotheses, frameworks, and theoretical models have been utilized as research in this area has advanced, with linkages being made between contextual factors (such as the existence of protective legislation and company policies related to sexual orientation), psychological experiences, behaviors, and attitudes.

ORGANIZATIONAL CLIMATE FOR SEXUAL MINORITIES

Organizational climate has been loosely defined as a broad class of organizational and perceptual variables that reflect individual–organizational interactions and that influence individuals' behavior in organizations (Glick, 1985, 1988). Organizational policies, practices, and procedures create a set of rewards and expectations that indicate to organizational members the kinds of goals that are important, and behaviors by which the goals are to be accomplished. Consequently, the network of organizational practices and policies, and the rewards and expectations that result, create a shared sense of imperative. These, in turn, guide behavior. The sense of

[1] It is important to note that this research has been conducted mainly within the USA, so has adopted a Western perspective. The extent to which findings generalize to other countries and cultures has not been determined.

imperative that arises is synonymous with organizational climate (Pritchard & Karasick, 1973; Reichers & Schneider, 1990; Schneider & Rentsch, 1988).

Schneider & Reichers (1983) argue that a work setting generates numerous climates that are specific to some aspect of the organizational context. A number of specific climates have been examined in past research (e.g., service climate and climates for safety). Zohar (1980) concluded that when organizational climate is conceptualized around a particular organizational issue or dimension, it can serve as a useful tool for understanding organizational behavior.

Button (1996, 1997) conceptualized organizational climate for sexual minorities as an attribute of the organization that reflects the extent to which there is acceptance of, and appreciation for, sexual diversity. Affirming settings are characterized by an understanding that organization members should be treated equitably, regardless of sexual orientation. Actions based on homophobic or heterosexist attitudes are seen as inappropriate within the bounds of the organization. Consequently, lesbian and gay employees in more affirming settings should be less likely to experience heterosexist biases, derogatory comments, physical harassment, and job-related treatment discrimination. Those in less affirming settings are more likely to be faced with these types of behavior and, in the event that they occur, may experience some level of apathy or ambivalence from others in the organization.

Button (1996, 2001) examined the relationship between organizational policies and practices that recognize and affirm sexual diversity (e.g., a non-discrimination clause that includes sexual orientation, a recognized lesbian/gay/bisexual employee group, public support of lesbian and gay causes, and domestic partnership benefits) and organizational climate for sexual minorities.[2] The findings demonstrated that the prevalence of affirming policies and practices was positively related to organizational climate for sexual minorities. Indeed, the nine organizational policies considered in the research collectively explained more than 60% of the observed variance in organizational climate. This suggests that policies that recognize and affirm the existence of gay and lesbian employees help to create a shared climate in which there is an acceptance of, and appreciation for, sexual diversity (Schneider & Reichers, 1983; Schneider & Rentsch, 1988). That is, these policies communicate that lesbian and gay employees are valued members of the organization and that individuals should be treated equitably regardless of sexual orientation.

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[2] Organizational climate is assessed at the organizational-level using either an aggregation approach or a direct measure of climate in a particular workplace. When an aggregation approach is adopted, multiple judges assess the organizational attribute and their judgements are aggregated to the organizational-level if their ratings exhibit an acceptable level of agreement (James, 1982; Kozlowski & Hattrup, 1992; Rousseau, 1985). Climate measures at the organizational-level facilitate the testing of multi- or cross-level models and lessen or eliminate concern over common method variance (Rousseau, 1985; Sirotnik, 1980).

Waldo (1999) examined the influence of affirming organizational policies and practices on perceived organizational climate for sexual minorities.[3] The results showed that the prevalence of affirming policies was related to perceived climate. The more prevalent these policies, the less tolerant the climate is of heterosexism. Similarly, Ragins and Cornwell (2001) found that the more prevalent affirming organizational policies, the less prevalent discrimination was perceived to be in the organization. They also found that gays and lesbians working in municipalities with protective legislation were less likely to report discrimination within the organization than those who did not work in such municipalities.

A number of researchers have investigated the implications of organizational climate for lesbian and gay employees. This research is discussed in the sections that follow.

DISCLOSURE OF SEXUAL ORIENTATION

Goffman (1963) observed that not all sources of social stigma are equally visible. For example, the stigmatized status of ex-mental patients is not readily visible, whereas the status of those who are blind is usually apparent to others. When membership in a stigmatized group is not immediately apparent, the individual must decide whether to 'display or not to display; to tell or not to tell; to let on or not to let on; to lie or not to lie; and in each case, to whom, how, when, and where' (p. 42). This is a decision faced by most gay males and lesbians. The overwhelming majority of this group is not visibly distinguishable from the majority population (Paul, 1982). In fact, Kinsey and his colleagues (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Wardell, Martin, & Gebhard, 1953) estimated that only about one in seven gay males, and one in twenty lesbians are recognizable as such to the general public. Consequently, the majority of lesbians and gay males must decide how to manage information related to their sexual orientation during their daily interactions with others.

Triandis, Kurowski, and Gelfand (1994) observed that the decision of how to manage one's sexual identity in the workplace is a major issue in the lives of gay males and lesbians. Indeed, in a random sample of members of three national gay rights organizations, Ragins and Cornwell (2001) recently noted considerable variation in the extent to which respondents were 'out' at work (i.e., had disclosed their sexual orientation). Among their study participants,

[3] Perceived organizational climate is assessed at the individual-level by asking participants to render a judgment regarding the climate in their workplace. Consequently, measures of perceived climate may be contaminated by individual characteristics (e.g., centrality of sexual identity) and are more susceptible to common method variance.

11.7% reported that they were out to no one at work, 37.0% reported being out to some people, 24.6% reported being out to most people, and 26.7% reported being out to everyone at work. Thus, even in a sample where participants are members of gay rights organizations and, therefore, presumably more open about their sexuality than the average lesbian or gay employee, most of them concealed their sexual orientation from others at work.

The decision of how to manage a stigmatized sexual identity in the workplace is frequently characterized as a dichotomous choice between passing as a heterosexual or openly identifying oneself as gay or lesbian (e.g., Elliott, 1993; Ellis & Riggle, 1995; Griffith & Hebl, 2002; Levine & Leonard, 1984; Signorile, 1995; Waldo, 1999). For example, Fassinger (1993, 1995, 1996) has indicated that gay and lesbian individuals must choose between disclosure (i.e., passing as a heterosexual) and non-disclosure (i.e., coming out) in the workplace, and that each option is associated with a range of antecedents and consequences. Similarly, Day and Schoenrade (1997) portrayed identity management as a decision between concealing a gay or lesbian identity or being open as a lesbian or gay individual.

Recently, attention has turned to the methods, or strategies, gay males and lesbians use to manage a stigmatized sexual identity in the workplace (Button, 1996; Croteau, 1996). That is, researchers have begun to consider the behaviors associated with disclosure and non-disclosure. Woods (1992, 1993) argued that there are multiple paths to non-disclosure, and the way that gay and lesbian employees choose to manage their sexual identity has important consequences. In a detailed qualitative study, Woods identified three strategies gay males use to manage their sexual identities in organizational settings. The strategies included counterfeiting a false heterosexual identity, avoiding the issue of sexuality altogether, and integrating a gay identity into the work context.

Counterfeiting and avoiding are each associated with non-disclosure. Woods (1992, 1993) portrayed counterfeiting as an active strategy that involves constructing a false heterosexual identity. Implementing this strategy might include altering gender-specific pronouns when describing what is, in fact, a same-sex relationship; dropping an occasional clue about a fictional date or relationship; or fabricating a full-fledged heterosexual relationship. An avoiding strategy requires continuous self-editing and half-truths. Individuals who use this strategy do not attempt to fabricate a heterosexual identity, but rather, strive to reveal nothing about their personal lives. The individual subtly eludes personal questions, speaks in generalities, or steers the conversation away from oneself. Finally, an integrating strategy is associated with disclosure. The gay or lesbian employee reveals his or her true sexual identity and attempts to manage the consequences. According to Woods, the individual may reveal his or her sexuality in an indirect or unobtrusive fashion, such as making telling remarks, or looking for opportunities to tell coworkers whom they believe will be accepting.

Although Woods' (1992, 1993) study was restricted to gay males, a more limited qualitative study by S. E. Woods and Harbeck (1991) suggests that there is some commonality with the strategies adopted by lesbians. Based on a small sample of lesbian physical education teachers, these researchers identified three general approaches lesbians use to conceal their sexual identity: passing as heterosexual, self-distancing from students and peers, and self-distancing from issues of homosexuality. Passing as a heterosexual is synonymous with Woods' counterfeiting strategy. It is an active attempt to mislead others by altering names, describing fictional dates, and bringing opposite sex dates to school functions. The self-distancing strategies described by S. E. Woods and Harbeck are highly similar to Woods' avoiding strategy. They involve avoiding situations that would call for an exchange of personal information, and avoiding topics that are associated with homosexuality.

Although none of the teachers in the sample were fully open about their sexuality at work, S. E. Woods and Harbeck (1991) discussed three types of 'risk-taking behaviors' sometimes exhibited by the teachers. They included dropping subtle hints about one's sexual identity (e.g., discussing activities with a 'room-mate'); actively confronting homophobic statements or publicly supporting a gay student; and openly admitting one's lesbianism to a trusted peer. These behaviors are conceptually similar to Woods' (1993) integration strategy. Thus, although their sample was very limited, S. E. Woods and Harbeck's findings provide some limited evidence that gay and lesbian employees employ similar identity management strategies.

Based on a qualitative study, Griffin (1992) described a model of identity management that identified four strategies along a continuum. A passing strategy is located at the most closeted end of the continuum and involves lying to coworkers in order to be seen as heterosexual. This strategy is akin to counterfeiting, as described by Woods (1993). A covering strategy, much like 'avoiding,' lies at a less closeted point along the continuum and involves censoring information so that one is not perceived as lesbian or gay. A third strategy, which can be conceptualized as 'acknowledging,' involves being implicitly out and, thus, reflects the more open end of the continuum. When this strategy is adopted, individuals obliquely reveal their true sexual identity without explicit statements or direct disclosure. The final strategy discussed by Griffin can best be described as advocacy: it involves being explicitly out and is located at the open end of the model's continuum. Individuals who adopt this strategy outwardly affirm their sexual identity and encourage coworkers to see them as lesbian or gay.

Button (in press) replicated and extended earlier work by quantitatively investing the underlying factor structure associated with identity management. More specifically, he used a confirmatory factor analytic approach to empirically evaluate a two-factor (i.e., passing and integrating), three-factor (i.e., counterfeiting, avoiding, and integrating), and a four-factor (i.e.,

counterfeiting, avoiding, acknowledging, and advocating) model. The results provided support for Woods' (1992, 1993) earlier conclusions. A three-factor model provided the best fit to the data, strongly suggesting that identity management is more complex than deciding whether to pass as a heterosexual or to openly identify as a gay male or lesbian. Indeed, as suggested by Woods, individuals may choose to counterfeit a heterosexual identity; appear asexual by avoiding the topic of sexuality; or integrate a gay or lesbian identity into an organizational setting. The results also indicated that being open about one's sexual identity is best portrayed as a single strategy (i.e., integrating). Efforts to measure passive (i.e., acknowledging) and active (i.e., advocating) components of this strategy revealed that while they could be distinguished, they were strongly related ($r = 0.98$).

Button (in press) also found that individuals may employ a combination of strategies in the workplace, rather than relying on a single identity management strategy. Lesbian and gay employees may counterfeit a heterosexual identity in the presence of some coworkers and avoid the topic of sexuality altogether with others. Alternatively, an individual may rely on an avoiding strategy unless pressed into counterfeiting tactics. Finally, the use of an integrating strategy does not completely preclude the use of counterfeiting and avoiding tactics. Some individuals may be open only with selected coworkers and adopt alternative strategies when others are present. This pattern of results is consistent with the findings presented in earlier research (e.g., Croteau, 1996; Friskopp & Silverstein, 1995; Hall, 1986; McNaught, 1993).

Finally, Button (in press) conducted a set of multigroup analyses (Jöreskog & Sörbom, 1989) to determine if gay males and lesbians use the identity management strategies in the same manner. The results revealed that while the same factor pattern existed for gay males and lesbians, there was variance in the pattern of interfactor correlations across groups. A set of exploratory analyses, however, revealed that each of the correlations between strategy constructs was statistically equivalent across groups. Thus, overall, the results suggest that a three-factor model describes the patterns of behavior exhibited by both lesbians and gay males. That is, members of each group tend to use counterfeiting and avoiding tactics in combination, and neither counterfeiting nor avoiding completely precludes the use of integrating behaviors with selected coworkers.

Antecedents

Woods (1992, 1993) observed that the extent to which an organization affirmed sexual diversity was not strongly predictive of the identity management strategies adopted by gay males within the organization. Of those interviewed, some of the most secretive were employed in relatively affirming

organizations, whereas some of the more open individuals worked in homophobic surroundings. Wood's observation suggests that the use of identity management strategy is influenced by factors other than organizational climate or policy.

Researchers and theorists working in this area have increasingly concluded that identity management is influenced both by organizational and individual characteristics (Button, 1996, 2001; Croteau, 1996; Fassinger, 1995, 1996; Griffith & Hebl, 2002). Some (e.g., Button, 1996; Fassinger, 1995, 1996) have also suggested that identity management in the workplace is influenced by community characteristics or climate. Others (e.g., Chrobot-Mason, Button, & DiClementi, 2001; Griffith & Hebl, 2002) have argued that work group characteristics, or climate, should be considered.

Recent research on the organizational influences on identity management has focused mainly on organizational climate for sexual minorities and perceived organizational climate for sexual minorities. Button (1996, 2001) found organizational climate for sexual minorities was systematically related to the use of particular identity management strategies. Organizational climate was associated positively with both counterfeiting and avoiding strategies, and negatively with integrating. Thus, overall, work settings that are more affirming toward lesbian and gay employees are associated with more openness about one's sexual identity.

Chrobot-Mason et al. (2001) found that perceived organizational climate was related to the ways that gay and lesbian employees manage information about their sexual identity. Their results showed that perceived climate was associated negatively with avoiding and positively with integrating. Similarly, recent research by Griffith and Hebl (2002) showed that the more an organization was perceived to be supportive of gay and lesbian employees, the more likely these employees were to disclose their sexual orientation to coworkers. Waldo (1999) also found that perceived organizational climate was related to the level of openness in the workplace. Gay, lesbian, and bisexual employees were more likely to disclose their sexual identity to coworkers when the organizational context was perceived to be supportive.

Ragins and Cornwell's (2001) research revealed that identity management was influenced by perceived workplace discrimination, the prevalence of affirming organizational policies, and the existence of protective legislation. More specifically, they found that gay and lesbian employees who perceived greater workplace discrimination were more likely to conceal their sexual orientation at work than those who perceived lower levels of discrimination. Also, organizational-level policies that support gay and lesbian employees (e.g., a nondiscrimination statement that includes sexual orientation and same-sex domestic partnership benefits) and community-level protection (e.g., protective legislation) had direct effects on identity management. Lesbian and gay employees were more likely to disclose their sexual

orientation in organizations and communities with affirming policies and legislation. These antecedent conditions also had indirect effects on identity management through perceived discrimination, suggesting that organizations that lacked affirming policies and communities without protective legislation increased the likelihood that lesbian and gay employees experienced discrimination on the job. This in turn was related to the probability that these employees disclosed their sexual orientation, with more discrimination leading to less disclosure.

A number of researchers have argued that individual characteristics must be considered in order to fully understand identity management in the workplace (e.g., Button, 1996, 2001; Fassinger, 1995, 1996; Griffith & Hebl, 2002). For example, Button (1996) observed that those who are more readily identifiable as lesbian or gay male may be less able to adopt a strategy associated with non-disclosure. His results supported this supposition; identifiability was negatively associated with counterfeiting and avoiding and positively associated with integrating.

Most of the research on the influence of individual attributes has examined how sexual identity development influences identity management in an organizational setting. Lesbians and gay males may hold varied attitudes regarding their sexual identity (Cass, 1979; Miranda & Storms, 1989; Sophie, 1985/1986) because of the stigmatized status of sexual minority members in our society. Accordingly, Fassinger (1995) argued that group membership identity (i.e., the acceptance of one's membership in a stigmatized group) is an individual psychological characteristic that might influence the way that lesbians and gay males manage their sexual identity in the workplace. She suggested that individuals who have acknowledged and embraced their status as a sexual minority are more likely to be open regarding their sexual identity.

Button (1996, 2001) found that lesbian and gay male group identity attitudes (Walters & Simoni, 1993) were related to each of the identity management strategies. Those who more strongly idealized heterosexuality and devalued 'gayness' (i.e., pre-encounter attitudes) were more likely to exhibit both counterfeiting and avoiding behaviors, and less likely to integrate. In general, the reverse was observed for the remaining two group identity attitudes. Immersion–emersion attitudes, which are characterized by strong attraction to the gay community and anger directed toward societal heterosexism and homophobia, were associated negatively with counterfeiting and positively with integrating. Finally, internalization attitudes, which include feelings of self-acceptance and self-actualization, were correlated negatively with both counterfeiting and avoiding, and positively with integrating. The results were consistent, therefore, with Fassinger's (1995) earlier observation. More developed group identity attitudes (i.e., immersion–emersion and internalization attitudes) were associated with more openness about one's sexual identity.

Chrobot-Mason et al. (2001) also found that sexual identity development was related to the use of each identity management strategy. The research employed a modified version of Phinney's (1992) Multigroup Ethnic Identity Measure (MEIM) to assess the extent of an individual's exploration of, and commitment to, a gay or lesbian identity. The results showed that sexual identity development was associated negatively with counterfeiting and avoiding, and associated positively with integrating.

Griffith and Hebl (2002) investigated both the influence of centrality of sexual orientation (i.e., the extent to which an individual's gay or lesbian identity influences his or her self-concept) and the degree of self-acceptance on identity management by lesbian and gay employees. Their results revealed that while centrality of a gay or lesbian identity was not related to identity management, acceptance of a gay or lesbian identity was associated with more openness at work. This finding was consistent with both Fassinger's (1995) general observation and the results reported by Button (1996, 2001) and Chrobot-Mason et al. (2001).

Consequences

The manner in which a stigmatized sexual identity is managed in the workplace holds a variety of potential consequences for both the individual lesbian or gay employee and the organization (Button, 1996, 2001; Fassinger, 1996; Kronenberger, 1991; Woods, 1992, 1993; Woods & Harbeck, 1991). Fassinger (1993, 1996) and others (e.g., Croteau & Hedstrom, 1993; Gonsiorek, 1993) have argued that the strain associated with secrecy in the workplace is likely to have a negative impact on occupational satisfaction, job performance, career and job efficacy, work-related attitudes, and general mental health. Alternatively, disclosure of one's sexual identity to coworkers eliminates the need for secrecy and may combat isolation, bolster efficacy, engender social support for occupational goals, and allow the individual to contribute more fully to the organization's success. Disclosure may, however, increase the risk of losing one's job as well as experiencing harassment, discrimination, and/or physical violence.

Although a number of researchers have discussed the potential consequences of identity management, and many of their suppositions would seem plausible, there has been relatively little research in this area. Based on his qualitative research, Woods (1992, 1993) observed that counterfeiting and avoiding demand both time and attention to maintain, and are therefore likely to limit the individual's productivity. He also speculated that the social isolation demanded by an avoiding strategy may be particularly harmful to productivity in jobs where a high level of interpersonal contact or teamwork is required. Finally, Woods noted that if the organization does not provide an affirming climate for sexual minority members, then those who integrate may

exhibit lowered productivity, satisfaction, and commitment as well as higher levels of turnover.

Chrobot-Mason et al. (2001) found that avoiding was negatively associated with open group process. That is, those who used avoiding tactics felt less able to express their views within the group and more removed from group decision-making. The results also showed that counterfeiting was positively associated with open group process. This suggests that the misrepresentations associated with this strategy may help keep the individual embedded within the group. In the long-term, however, counterfeiting tactics may lead to lowered self-esteem, efficacy, and satisfaction (Triandis et al., 1994; Woods, 1992, 1993).

Button (1996, 1997) examined the influence of identity management strategies on work-related attitudes. The results showed that use of an avoiding strategy was negatively related to both organizational commitment and job satisfaction, and explained variance in each work-related attitude beyond that explained by organizational climate. The results also showed integrating was negatively associated with job satisfaction, and that this strategy explained variance in satisfaction over that explained by organizational climate. The pattern of results suggests that the social isolation and distancing required by an avoiding strategy lead to more negative work-related attitudes regardless of the organizational context. However, use of an integrating strategy seems to have the same negative effect on job satisfaction.

The research also provided some evidence that the consequences of using an integrating strategy is influenced or moderated by the organizational context. Button's (1996, 1997) results showed that in a non-affirming organizational climate, integrating led to lower job satisfaction and organizational commitment. Alternatively, in a more affirming climate, greater use of an integrating strategy led to higher levels of commitment. The same was not true for satisfaction. In fact, contrary to commitment results, higher levels of integrating always led to lower levels of satisfaction.

The results suggest that openness in non-affirming settings may elicit higher levels of harassment and discrimination and, ultimately, lowered organizational commitment and job satisfaction (Button, 1996, 1997). In more affirming climates, it appears that lowered levels of harassment and discrimination foster greater commitment, but not satisfaction. It may be that, due to the pervasiveness of societal homophobia and heterosexism (Herek, 1989, 1994; Herek & Berrill, 1992; Kite & Whitley, 1996), individual acts of harassment or intimidation still occur in even the most supportive organizations. Affirming employers are likely to condemn these acts and, therefore, may 'earn' the commitment of gay and lesbian employees. However, even if the organization condemns such acts of intolerance, individuals' job satisfaction may be negatively impacted.

Waldo (1999) investigated the relationship of 'outness' to the types of

harassment and discrimination experienced by lesbian and gay employees in the workplace. He found that those who were less open about their sexual orientation were more likely to experience indirect forms of harassment and discrimination, such as pressure to 'act straight.' Alternatively, lesbian, gay, and bisexual employees who had disclosed their sexual identity to more co-workers were more likely to be faced with direct forms of harassment and discrimination, including demeaning slurs, threats, and physical violence. These results suggest that the identity management strategy adopted by the individual may influence the type of harassment and discrimination encountered: those who are most open are most likely to be faced with direct harassment and discrimination.

Griffith and Hebl (2002) suggested that the benefits typically ascribed to disclosure will only manifest themselves when coworkers react positively. Their results showed that coworkers' reactions mediated the relationship between disclosure and work-related attitudes. Specifically, openness regarding one's sexual orientation only leads to increased job satisfaction and decreased job anxiety when coworkers' reactions were perceived to react positively to the disclosure.

At present, there is relatively little research that has directly examined the consequences of various modes of identity management in the workplace. The research that does exist suggests that gay and lesbian employees are faced with a double-edged sword when managing a stigmatized sexual identity at work. On the one hand, concealing a gay or lesbian identity may limit an individual's productivity and negatively impact work-related attitudes, occupational satisfaction, efficacy, and general mental health, but reduce the likelihood of experiencing direct forms of discrimination. On the other hand, disclosing one's identity as a gay or lesbian employee lessens or eliminates the burdens associated with secrecy, but increases the probability that the individual may be subject to direct forms of harassment, discrimination, and physical violence from those who are not accepting of sexual minority members. Much of this, however, remains to be empirically tested.

WORKPLACE DISCRIMINATION BASED ON SEXUAL ORIENTATION

There is limited research that documents the prevalence of sexual orientation-based discrimination. In Croteau's (1996) review of the literature, he found that between 25% and 66% of the gays and lesbians who participated in the few studies conducted up until that time reported being discriminated against during their employment history. In addition to actual experiences with discrimination, many gay and lesbian individuals—up to 60% in one

study (Levine & Leonard, 1984)—anticipated receiving disparate treatment at some point in their careers on account of their sexual orientation (Croteau, 1996).

The concept of 'discrimination' and disparate treatment is a broad one. Recently, a useful distinction has emerged in the literature between two types, or categories, of discrimination: overt and subtle (Gaertner & Dovidio, 1986). Levine and Leonard (1984) termed overt workplace discrimination as 'formal' discrimination against gay and lesbian employees. This aspect corresponds to traditional notions of workplace disparity, including the inequitable allocation of work-related resources, such as pay and job responsibilities, and biased employment decisions, like hiring, termination, and promotion.

Subtle or 'informal' discrimination occurs during the course of interpersonal interactions between employees (Hebl, Bigazzi, Mannix, & Dovidio, 2002; Levine & Leonard, 1984). The nature and, indeed, the full impact of these informal behaviors have not yet been fully explored in the sexual orientation literature, but they have received attention by race and gender researchers. Informal discrimination has been identified as one of the major contributors to the differential work experiences of workplace minorities. It is a natural tendency for people to affiliate with others like themselves (Ibarra, 1995). For members of the majority group (i.e., white, heterosexual men in most organizations), social networks are often expansive because there are many individuals with similar backgrounds and life experiences with whom to interact (Kanter, 1977). Members of minority groups, however, have difficulty gaining access to these social networks and, thus, often find themselves cut-off from informal channels of communication and generally lacking the workplace social relationships that lead to career benefits (Ibarra, 1995; Kanter, 1977; Lyness & Thompson, 1997; Seibert, Kraimer, & Liden, 2001).

There is emerging evidence from studies outside of the work context that gays and lesbians may face informal discrimination on account of their sexual orientation. The results of a laboratory study, for example, revealed that male subjects asked fewer questions about, and expressed less liking for, a student partner identified as homosexual than one identified as heterosexual (Kite & Deaux, 1986). Also in a laboratory experiment, Cuenot and Fugita (1982) showed that participants spoke more quickly to, and expressed more discomfort around, experimenters whom they thought were gay or lesbian, especially when the experimenter and subject were of the same sex.

The extent to which help is offered to individuals in need has also been found to be influenced by sexual orientation. In a study by British researchers, people were less likely to help an individual wearing a t-shirt with a pro-gay message on it than a person who was wearing a t-shirt with no message on it (Gray, Russell, & Blockley, 1991). Similarly, three studies conducted in the USA and the UK indicated a lesser willingness to help

gays and lesbians (Ellis & Fox, 2001; Gore, Tobiasen, & Kayson, 1997; Shaw, Borough, & Fink, 1994). Confederates in these studies made random calls to the 'wrong number.' Ostensibly, the confederates were in need of help (e.g., his or her car broke down) and they were trying to get in touch with their same-sex or opposite-sex romantic partner. Study participants were significantly more likely to offer help to the 'heterosexual' than the 'homosexual' in need. There is, however, some indication that these findings are culture-specific: a Swiss sample showed no bias against homosexual callers (Gabriel et al., 2001).

One recent study explored the ways that these subtle biases may be expressed and, ultimately, impact the experiences of gays and lesbians in a work context. Hebl et al. (2002) studied the extent to which gay and lesbian job applicants are treated differently than heterosexual applicants both formally (i.e., receiving an invitation to interview for an open position) and informally (i.e., how they were treated when they approached a potential employer for work). Research confederates wore either a hat with 'Gay and Proud' or 'Texan and Proud' printed on the front as they applied for jobs in a Texas retail shopping mall. The confederates were unaware of which experimental condition they were in.

The results of this study revealed little evidence of *formal* discrimination: those wearing a 'Gay and Proud' cap were contacted for employment interviews at the same rate as confederates who wore the 'Texan and Proud' cap. However, there was strong indication of *informal* differences in the way these two groups were treated. Specifically, the length of time that store managers spent talking to the confederates identified as gay or lesbian was shorter than the amount of time they spent talking with applicants presumed to be heterosexual, and fewer words were spoken. Additionally, the confederates wearing the 'Gay and Proud' cap regarded their interactions more negative in tone and content than confederates wearing the 'Texan and Proud' cap.

Outside of the few studies mentioned above, most researchers have investigated discrimination through the use of indirect assessment. Measures of *actual* discrimination, which include the real and measurable differences in behaviors and decisions that affect gay and lesbian employees and the types of interactions between them and their coworkers, managers, and subordinates, are difficult to collect in organizational settings. Therefore, many researchers have opted to ask gay and lesbian employees whether they believe they have been treated differently than heterosexual employees because of their sexual orientation in order to assess *perceived* discrimination. Despite the obvious disadvantages of using indirect measures, these methods have allowed researchers to begin exploring the myriad forces that contribute to instances of formal and informal discrimination. Indeed, several recent studies have been theoretically-driven advances in mapping the antecedents to employees' experiences of discrimination.

The Impact of Context on Perceptions of Discrimination

Not surprisingly, the social and organizational context in which gay and lesbian employees work can strongly influence their experiences with discrimination. Organizational-level factors, in particular, have emerged as especially powerful determinants of employees' perceptions of disparate treatment. For example, as discussed above, Button (1996, 2001) found that the prevalence of affirming organizational policies and practices was positively related to the organizational climate experienced by sexual minorities. He observed that those who worked in a more affirming organizational climate were less likely to perceive discrimination in the distribution of job-related opportunities, benefits, and policies. Similarly, Ragins and Cornwell (2001) found that the presence of organizational programs was associated with a decrease in reported instances of discrimination, which were defined as consisting of both formal (e.g., perceived discrimination in the allocation of work rewards and opportunities) and informal (e.g., reported experiences of social isolation and intolerance on account of sexual orientation) elements.

Despite the demonstrated influence of organizational policies and practices on discrimination reported in this research, the underlying mechanisms through which they exert their influence have not been determined. It has been speculated that policies are tangible manifestations of an organization's climate (Schein, 1992). Thus, organizations that have instituted non-discrimination and other policies that support their gay and lesbian employees are more likely to have a climate in which discrimination is less likely to occur (Ragins & Cornwell, 2001).

Available evidence is consistent with this speculation. Organization climate has emerged as a particularly powerful organization-level predictor of discrimination. Ragins and Cornwell (2001) found that the single most important organization-level predictor of gay and lesbian employees' experiences with discrimination was the extent to which they felt that their same-sex partners would be welcomed to company events. This factor, rather than reflecting any specific policy or practice, was perhaps one indication of the extent to which gays and lesbians felt that they were accorded similar levels of respect and valuation as heterosexual employees. Waldo (1999) found similar results using an assessment of organizational climate, which measured employees' perceptions of their organization's tolerance for heterosexism. This variable was strongly associated with gay and lesbian employees' reported experiences of biased treatment, which ranged from the subtle (e.g., pressure to hide one's sexual orientation), to the overt (e.g., verbal and physical harassment). Unlike the other studies reviewed here, Waldo found that organizations' official policies that relate to sexual orientation, such as those forbidding discrimination on the basis of sexual orientation, the extension of health benefits to same-sex partners, and diversity training, did not significantly contribute to the prediction of gay and lesbian employees'

experiences with heterosexism above and beyond the affect of climate. These discrepant findings provide indirect evidence that the effects of these organizational-level policies may be mediated through organizational climate (Waldo, 1999).

Perceptions of discrimination are not only related to organizational-level policies, however, but also to community-level factors. Gay and lesbian employees working in a municipality that offers protective legislation against workplace discrimination based on sexual orientation were less likely to report being discriminated against on the job (Ragins & Cornwell, 2001).

The Impact of Attitudes toward Gays and Lesbians on Discrimination

Despite the preponderance of evidence that organizational and community factors are related to gay and lesbians' reported experiences with discrimination, there is little research that has examined the influence of societal-level factors. Some preliminary evidence has emerged that shows the more prejudiced one is against gays and lesbians, the more likely he or she is to display discriminatory behaviors (Kite & Deaux, 1986). For example, in the second of their series of studies, Haddock and Zanna (1998) measured students' attitudes toward homosexuals. Two weeks later, these same students were told that the university was cutting funds to student organizations by 20%. They were given a list of student programs, which included the 'Gay and Lesbian Liberation Organization,' and asked to indicate how university money should be allocated to each of them with the provision that the overall funds were reduced by 20%. Not surprisingly, students' attitudes toward gays and lesbians predicted the amount of funding reductions they recommended for the gay and lesbian organization. Those with unfavorable attitudes proposed, on average, a 42% reduction in funds. This was significantly higher than subjects with favorable or neutral attitudes, who proposed an average reduction of 25% and 27%, respectively.

The results reported by Haddock and Zanna (1998) provide some initial, compelling evidence of the behavioral outcomes of negative attitudes. But what are the work-related ramifications of these attitudes? Will they lead to discrimination in hiring, promotions, or disparate treatment? Unfortunately, these questions have not yet been answered by current research. Ragins and Cornwell (2001), however, have provided some indirect evidence that the attitudes of the individuals with whom a gay or lesbian employee works can impact their experiences of discrimination. Results from their study showed that gay and lesbian employees who worked with other gay and/or lesbian colleagues tended to report less discrimination than those who did not. Although not explicitly measured, it can be surmised that gay and lesbian coworkers exhibit less heterosexist behaviors and attitudes and, thus, are less likely to discriminate on the basis of sexual orientation than

are heterosexual employees. These indirect findings deserve more in-depth attention in future research.

Consequences of Discrimination and Work Environment for Gay and Lesbian Employees

The important question, 'does sexual orientation-based discrimination ultimately place gay and lesbian employees at a disadvantage relative to heterosexual employees?' has only recently begun to be answered. The extent to which discriminatory behaviors, both actual and perceived, have affected tangible work outcomes, such as employment status, salary, and promotion rates, is difficult to assess. Identifying gay and lesbian individuals, gaining access to tangible data such as salaries or performance appraisals, as well as information on potential contributing factors that must be controlled to find evidence of discrimination, have prevented many researchers from conducting quantitative studies that indicate the extent of the effects of formal and informal discrimination (Badgett, 1996).

Two recent studies examined the relationship between discrimination and tangible work outcomes. Badgett (1995) categorized a nationally representative sample of survey respondents as either homosexual or heterosexual based on their self-reported sexual behavior. She conducted a wage-gap analysis between these two groups while controlling for the effects of occupation and education. Results of this investigation revealed that the men categorized as homosexual earned, on average, 7% less than heterosexual men, which represents a significant difference in salary. However, there were no consistent significant differences between the salaries received by lesbians and heterosexual women (Badgett, 1995). Another study showed that perceived discrimination had a significant negative relationship with self-reported promotion rate, but not salary (Ragins & Cornwell, 2001).

There is clearly a dearth of knowledge about the tangible effects of sexual orientation-based discrimination in the workplace. We know far more about the psychological outcomes associated with discrimination (Mays & Cochran, 2001). Theoretically, this research draws from links established by a number of discrimination researchers. Waldo (1999) drew from the theoretical work of Meyer (1995), who proposed that gay and lesbian employees are likely to feel higher levels of stress and isolation than heterosexual employees because of their ever-present minority status in most organizational settings. Consonant with his predictions, Waldo found a strong relationship between gay, lesbian, and bisexual employees' perceptions of discrimination and their reported symptoms of stress, such as depression, lowered life satisfaction, and health problems (e.g., headaches, ulcers, and exhaustion).

Social identity theory has spurred the search for self-esteem-based consequences of perceived discrimination (James, Lovato, & Cropanzano, 1994). One benefit to forming social identities is the increased self-esteem

that results from comparing one's social group positively to other groups. However, when individuals perceive that they have been treated negatively in the workplace on account of their membership in a group, social identification will have the opposite effect on self-esteem: it will be lower than the self-esteem of those who do not perceive discrimination. James and colleagues demonstrated this effect with women and racial/ethnic minorities. There is evidence that similar affects occur for gay and lesbian employees: Ragins and Cornwell (2001) and Waldo (1999) both found a negative relationship between gay and lesbian employees' perceptions of discrimination and their reported self-esteem.

Job attitudes, such as job satisfaction and organizational commitment, constitute central dependent variables in many of the recent studies of sexual orientation discrimination. Intuitively, experiencing negatively biased treatment based solely on one's sexual orientation would lead a gay or lesbian employee to feel less positive about the individuals responsible for such treatment, and the organization in which this treatment is tolerated. Additionally, to the extent that discrimination is perceived to be associated with negative interactions with coworkers or decreased access to valued resources such as pay, promotions, or increasing job responsibilities, gay and lesbian employees who believe that they have been discriminated against will likely be less satisfied with their jobs. These intuitive links have indeed been validated by research: three recent studies have shown an association between perceived discrimination and job satisfaction and/or organizational commitment (Button, 2001; Ragins & Cornwell, 2001; Waldo, 1999). In all cases, stronger perceptions of discrimination were associated with more negative work attitudes.

There is evidence as well that gay and lesbian employees' workplace attitudes are affected by their beliefs about their organization's climate. Griffith and Hebl (2002) found that gay and lesbian employees, who believed that their organizations are supportive of, and committed to, the fair treatment of gays and lesbians, tended to be more satisfied with their jobs and less anxious than those with less positive support-beliefs. The gay and lesbian employees in Ellis & Riggle's (1995) study who worked for companies with supportive policies reported higher levels of satisfaction than those who did not. Similarly, a positive relationship has been found between perceived management support of gay and lesbian employees and these employees' affective commitment and job satisfaction, and a negative relationship with work–life conflict (Day & Schoenrade, 2000). Finally, Driscoll, Kelley, & Fassinger (1996) showed that perceptions of the workplace climate around discrimination and homophobia were positively associated with lesbian employees' work satisfaction.

It is important to note that while the empirical linkages between discrimination and attitudes have been made, the theoretical explanations are still largely unexplored. Similar relationships have been found in research that

has examined race or gender discrimination (e.g., Greenhaus et al., 1990; Shaffer, Joplin, Bell, Lau, & Oguz, 2000), but the mediating mechanisms have yet to be determined.

SUGGESTIONS FOR FUTURE RESEARCH

We have certainly come a long way in the last several years toward understanding the work experiences of lesbian and gay employees: from charting the prevalence and nature of discrimination, to unveiling the complexities of identity management in the workplace. In addition to advancing our knowledge, however, researchers have unveiled a number of issues that have yet to be addressed. These concerns pertain to the methods we use to conduct our studies, the relationships between the variables that we study, and the populations and contexts that serve as the foundation of our research. In this section we identify those topics that we think are most pressing to consider in future investigations.

Methodological Concerns

Much of the research discussed in this review used a survey methodology, during which employees provided self-assessments on all variables by completing a single instrument. There are certainly practical advantages to using this method: it is much easier and more efficient than collecting data from multiple sources and methods, and it capitalizes on the availability of research participants in a way that is very difficult, using longitudinal studies that are conducted across a meaningful period of time.

Unfortunately, the results of these studies cannot be used to definitively support any statements about *causal* relationships among the constructs under study. Although a correlation between two constructs indicates that a cause and effect link *may* exist, it can never provide conclusive evidence of such a directional relationship. The studies that we reviewed were, by and large, guided by theories that suggest causal relationships between two or more variables, and the data were analyzed in ways to test the general efficacy of these theories. However, despite this guided approach to data analysis and interpretation, correlational research using a single measurement instrument always leaves open the possibility that the causal relationship is reversed (i.e., the 'dependent' variable actually is causing changes to the 'independent variable'), or that the variables are both linked to a construct that was not measured or considered.

For these reasons, we believe that researchers should utilize multiple methods to study a single phenomenon. Hebl et al. (2002) provide a good example of using experimental research methods to study discrimination.

Through the use of confederates and a real employment situation, they were able to systematically investigate the effects of perceived sexual orientation on work outcomes. Certainly, this research is easier to conduct when studying the behavior of the 'discriminator' than the 'discriminated' because subjects can be randomly assigned to conditions and their behavior measured (Welle, 2001). But perhaps laboratory research holds the key for further understanding: gay and lesbian students can partake in experiments in which the context is systematically varied. For manipulations that are high in external validity, this method might provide more compelling proof of the directional relationships between the variables that have been implied in survey research.

The use of longitudinal research can also open up new doors of understanding. For example, it would be valuable to follow an organization as it moves toward providing a more affirming context for lesbian and gay employees. Such research could assess organizational climate, prevalence of harassment and discrimination based on sexual orientation, characteristics of the workforce, work-related attitudes, and other constructs of interest prior to any organizational intervention (e.g., institution of affirming organizational policies). It could then consider the impetus for an organizational intervention (e.g., pressure for organizational members and norms within the industry), how the intervention is communicated to the workforce, and initial reactions from organizational members. The constructs that were initially assessed (e.g., organizational climate) could then be assessed over time to monitor changes and provide evidence of causal relationships.

Identifying and Testing Mediation

Related to the methods used to study the workplace experiences of gay and lesbian employees is the need to systematically investigate the mechanisms that mediate the relationships found in current research. There have been some initial steps in this direction: both Ragins & Cornwell (2001) and Waldo (1999) provided evidence for the mediating role of perceived discrimination in the relationships between a variety of organizational factors and psychological outcomes, such as work attitudes and health. However, there is clearly more work to be done. The researchers whose work was reviewed in this chapter identified many antecedents to experiences of discrimination and the strategies used to disclose one's sexual orientation (e.g., the presence or absence of organizational policies that affirm sexual orientation and organizational climate). There are also many outcomes of discrimination that were investigated, such as job attitudes and health-related factors. However, the psychological factors that explain *why* these relationships exist have often been discussed but only rarely tested.

Definitions and Measures

As a relatively new area of research, there has naturally been variation in how researchers have defined their constructs. At the foundation of our research is the population that we are studying—'gays and lesbians.' The defining characteristic of this group is a sexual attraction to members of the same sex, yet this population is not always neatly categorized into a distinct social group. Kinsey, who was an early pioneer in gay and lesbian research, showed that sexuality exists on a continuum rather than a dichotomy (Kinsey et al., 1948). On one end of the continuum is exclusive attraction to members of the same sex, and on the other is exclusive attraction to members of the opposite sex. Most people fall somewhere between these two extremes, yet most of the research we reviewed considered sexual orientation as a dichotomous category. Congruent with this conceptualization, the experiences of bisexuals (i.e., those attracted to both men and women) are typically *not* considered. As we gain sophistication in the questions we ask and the methodologies used to answer them, research should proactively adopt a more complex understanding of their research subjects and allow them to self-identify in ways that are not so rigidly defined. This complexity will become imperative as research is conducted outside of the USA and Western Europe, as the expression of a homosexuality identity may vary across cultures.

Other constructs that we commonly study have been measured in a variety of ways. Croteau (1996) observed that in the past, quantitative research tended to use single-item self-report measures of broadly defined constructs (e.g., discrimination and disclosure). Many of these items were written specifically for each study and were supported only by face validity. Recently, this has begun to change. A number of researchers in this area (e.g., Button 2001, in press; Chrobot-Mason et al., 2001; Griffith & Hebl, 2002; Ragins & Cornwell, 2001; Waldo, 1999) have employed multi-item measures and provided a description of the reliability and validity of the measures selected. Researchers should continue this trend by conducting measurement studies designed to examine the reliability and validity of new and existing measures. Moreover, we should strive toward consistency in how various constructs are measured. This will increase the comparability of research findings across investigations and serve to develop a coherent body of knowledge in this area.

Characteristics of Study Participants

Studying the workplace experiences of sexual minorities is more difficult than studying other demographic minority populations in one major respect: we cannot identify who they are unless they make themselves known to us. Thus, the totality of our understanding is based on the experiences of those who are open enough about their sexuality to at least disclose

this identity to a researcher. Unfortunately, there is no way around this conundrum, but we can choose to obtain our participants using a variety of methods. The methods for identifying participants range from using membership lists from gay and lesbian organizations (e.g., Ragins & Cornwell, 2001) to categorizing them based on self-reported sexual behavior (Badgett, 1995). However, until methods are developed to sample a more diverse gay and lesbian participant sample, researchers should take care in extrapolating their findings to the experiences of all gay and lesbian people.

There may be little that researchers can currently do to study the experiences of gay and lesbian employees at all stages of the coming out process, but they can focus on other kinds of diversity. There has been a conspicuous lack of research on the interface between sexual orientation and other identifications that exert influence on organizational experiences. There have been initial steps taken toward understanding the interaction between race and sexuality (Ragins, Cornwell, & Miller, 2003), yet there is clearly a need for more of this kind of research. Organizational research on race has shown that different races and ethnicities have different career-related perceptions, attitudes, and experiences (Catalyst, 1999). It is therefore necessary to be cognizant of the possible impact that race might exert on research findings. This can be approached initially by making an effort to have a racially diverse sample (Ragins & Cornwell, 2001, provide a good example of this), and then including race as an independent variable during data analysis. Other identity groups might also be considered in future research, both the visible ones like gender, body type, and age, and the invisible ones like religion and political affiliation.

Finally, there is a need to consider other identities related to sexuality. As mentioned above, we know very little about the experiences of bisexuals. Do they have more positive work experiences because they are more similar in their sexuality to heterosexuals? Or do they have a more difficult time because they are not truly a member of either of the categories 'homosexual' or 'heterosexual?' There is also a strong need to understand more about the experiences of those whose gender identities are at odds with their biological sex (i.e., transgender individuals). This group potentially encounters even more extreme instances of discrimination than gays and lesbians do, as only four states in the USA currently protect the members of this group from workplace discrimination (Human Rights Campaign, 2003). Yet, there has been no empirical examination of their experiences, perceptions, and attitudes about their work.

CONCLUSION

The scope and sophistication of research on the workplace experiences of gay and lesbain employees have grown tremendously within the last 10 years. In

the course of this chapter we have reviewed research that explores three main areas of organizational life of particular importance to sexual minorities: organizational climate; the antecedents and consequences of the strategies employees use to disclose and/or conceal their sexual orientation; and sexual orientation-based discrimination. The breadth of these research topics attests to the complexity of sexuality in the workplace. In contrast to the notion that sexual orientation is but a personal matter with no bearing on one's work or public life, we now know that being a sexual minority can influence employees' feelings about themselves, their work, and their organizations; the way they are perceived and treated by others; and their access to career opportunities and experiences.

Our main goal in this chapter has been to review existing research and provide directions for future inquiries. Thus, we have endeavored to present discreet topic areas so that we could thoroughly review the relevant research. It is important to acknowledge, however, that there in interplay between the various topics addressed. For example, the nature of an organization's climate for sexual minorities will likely be influenced by the attitudes of the organization's employees. This climate, in turn, has been shown to encourage or discourage employees' use of different strategies to conceal and/or disclose their sexual orientation to others. The decision of how and when to disclose may affect a host of outcomes, from physical and mental well-being, to attitudes about the organization and experiences with discrimination.

The relationships between these variables may well be reciprocal, with the traditional dependent variables (e.g., strategies used to conceal or disclose one's sexual orientation) ultimately influencing those variables typically considered to be independent variables (e.g., organizational climate). There are undoubtedly other complex relationships between these factors and others that have yet to be conceptualized and measured. In short, because this is an emerging and constantly evolving topic area, there is much more to discover about how sexual orientation interacts with the world of work.

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Chapter 6

MY JOB IS MY CASTLE: IDENTIFICATION IN ORGANIZATIONAL CONTEXTS

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Due to growing globalization, cross-national alliances, (international) organizational mergers, restructuring, delayering, or outsourcing, one could assume that the psychological bond between employee and employing organization has become weaker. Also, new forms of work and enterprises like telecommuting or other types of virtual organizations should psychologically distract employees even more from their organizations. One could also argue, however, that some kind of psychological attachment between organization and organizational member is *more* important for both the individual's well-being and the organization's success *because* of these rapid changes. The present overview of organizational identification argues in exactly this direction and holds some empirical evidence for this (e.g., Wiesenfeld, Raghuram, & Garud, 2001). The aim of this chapter is to give an overview of the antecedents, elements, and consequences of social identification in organizational contexts and thus the relevance of the concept for the analysis of organizational behavior. This will be done particularly in two domains where change processes are going on steadily and increasingly—organizational mergers and group productivity.

ORGANIZATIONAL ATTACHMENT IN AN ERA OF CHANGE

Rousseau (1998) asks what motivates employees to identify with their organizations in times of organizational change? She argues that contemporary workers are well aware of the fact that change in any form is necessary for today's organizations to be successful against the global competition. If the

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change is considered to help in the achievement of the organizations' goals or even to help the organization to survive, the change is incorporated in the organization's identity and thus, eventually, into the person's self concept. Thus, organizational change can also change organizational identification. But whether this change is either threatening or challenging and leads to increases or decreases in identification is highly dependent on the context of the change (i.e., the necessity and continuity of the process in the eyes of the employees). In the same vein, Meyer and Allen (1997) conclude that there are several reasons why employees' attachment to the organization is still important and becomes probably even more important in the future (cf. Pratt, 2000a). Meyer and Allen argue that: (1) Although organizations become more diverse, more global, and often face restructuring etc., they do not disappear. There must be—even in organizations undergoing enormous amounts of change—people who *are* the organization. (2) Particularly in times of change for those core members of the organization, psychological attachment is important and this is true for permanent as well as for temporary employees. Van Dyne and Ang (1998), for example, found in a study comparing regular and contingent workers that the relationship between organizational commitment and organizational citizenship (cf. Organ, 1997) was stronger for contingent workers than for regular employees. This result indicates that particularly for contingent workers positive attitudes about their attachment towards the organization impact on their engagement in organizational citizenship behaviors. (3) When—for instance as a result of delayering—hierarchies become more flat, employees have greater responsibility and autonomy. It can be assumed that employees who identify themselves with the organization don't abuse this freedom for the sake of personal interests, but engage themselves on behalf of the organization. (4) Members of changing organizations need more knowledge and skills to cope with the new challenges. The organization invests in the recruitment and training of these better qualified members. From the perspective of the organization, longer organizational tenure is essential to make these investments sustainable. We will see over the course of this article that organizational identification is a good predictor for turnover intentions and tenure. (5) Even when parts of the organization or certain tasks are outsourced, the organization is very much interested in getting these tasks done with high quality. After being outsourced one cannot expect high identification of employees with their former organization, but here, identification with the task itself can be considered to have impact on the quality and quantity of task performance. (6) Finally, identification is something 'natural'. Every employee needs something to identify with because identification satisfies several basic human needs (e.g., the need for esteem and the need for affiliation, cf. Pratt, 1998). When the organization does not actively try to become a target for its members' identification, the members might look for other categories to identify with and this might sometimes run

counter to the organization's goals (e.g., when employees strongly identify with unions).

Some years ago in this series, John Meyer (1997) presented a comprehensive review on organizational commitment. Since then some new theoretical arguments as well as even more comprehensive meta-analyses have been published with considerable evidence for the explanatory power of commitment on work-related attitudes and behaviors. Thus, organizational commitment is an interesting and, although long established, still growing field of theory and research. I will present some of its latest developments later in this chapter. One could ask now whether organizational identification is just old wine in new bottles. Although there is a certain similarity and overlap between the concept of organizational commitment and organizational identification, one aim of the present chapter will be to distinguish between these two concepts theoretically and to present some empirical evidence for the differentiation. Having shown that organizational identification is different from organizational commitment, the chapter will give an overview on the relationship between identification and work-related attitudes and behaviors. Firstly, however, a very mighty theoretical framework, the Social Identity Approach, is presented that will serve as a background for all further analyses of organizational identification.

THE SOCIAL IDENTITY APPROACH

There were some early attempts to show the relevance of organizational identification for work-related attitudes and performance (Brown, 1969; Cheney, 1983; Lee, 1969, 1971; Hall & Schneider, 1972; Rotondi, 1975). However, these earlier formulations are a little bit theoretically underdeveloped, and, in addition, the empirical measures used are hard to distinguish from other concepts like job involvement, organizational commitment, perceived organizational support, or turnover intentions. In the late 1970s, Social Identity Theory (SIT) was developed as a social psychological theory explaining intergroup conflicts and discrimination (e.g., Tajfel & Tuner, 1979). There were some early, but scattered applications of social identity in the field of organizational behavior in the era of the theories' development (e.g., Brown, 1978). In 1989, Ashforth and Mael published their seminal paper 'Social Identity Theory and the Organization' in the *Academy of Management Review*, presenting SIT's ideas to a broader audience in the organizational domain resulting in some very interesting research (e.g., Erev, Bornstein, & Galili, 1993). However, it took another decade until the social identity perspective became a somewhat mainstream framework in organizational behavior cumulating at the turn of the millennium with a number of monographs and edited books (e.g., Haslam, 2001; Haslam, van Knippenberg, Platow, & Ellemers, 2003; Hogg & Terry, 2001; Tyler &

Blader, 2000), as well as special issues of influential social psychological and management journals (*Academy of Management Review*, 2000; *Group Processes and Intergroup Relations*, 2001). Therefore, one aim of the present article is to demonstrate that the Social Identity Approach is a fruitful theoretical basis for the conceptualization of organizational identification and for the explanation of work-related attitudes and behaviors. The core aspects of the theoretical framework will now briefly be described.

The Social Identity Approach (cf. Haslam, 2001; Wagner & Zick, 1990) consists of two closely related theories: SIT (Tajfel & Turner, 1979, 1986) and Self-Categorization Theory (SCT) (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). SIT was initially developed to explain intergroup attitudes and posits that group-relevant behaviors are related to the individual's self-definition and that group membership defines at least a part of its member's identity—their social identity. The main predictions of SIT can be summarized with three assumptions (Tajfel & Turner, 1986, p. 16): (1) people strive for the establishment or enhancement of positive self-esteem; (2) a part of the person's self-concept, his or her social identity, is based upon the person's group memberships; and (3) to maintain a positive social identity, the person strives for positive differentiation between his or her ingroup and relevant outgroups. Tajfel and colleagues conducted a series of so-called 'minimal group experiments' to test these assumptions (Tajfel, Billig, Bundy, & Flament, 1971). In these experiments, participants were randomly assigned to one of two groups and were then asked to allocate points or small amounts of money to members of their own group (others than themselves) and members of the other group. It has been found that participants showed an ingroup bias (i.e., distributed more rewards to ingroup members compared to outgroup members and even aimed at maximizing the difference between ingroup and outgroup distributions neglecting a positive maximum joint profit). This finding is explained as a result of the participants' struggle for a positive social identity (Abrams & Hogg, 1988).

About ten years after the first publication of SIT, Henri Tajfel's colleague, John Turner, developed SCT in collaboration with a number of other scientists from the Bristol school (Turner et al., 1987). SCT specifies the processes within groups, and particularly contextual influences on identification. SCT proclaims to cover a larger field of application and to incorporate SIT (Turner, 1999, pp. 6–7). In practice, however, SCT has mainly enriched research on processes within groups and has brought a change in paradigm. Traditional small group research centered on interpersonal relations, such as interpersonal interdependence, as the basis of group development, SCT now sets the focus on self-categorization. A group emerges when a number of people perceive themselves to be members of the same social category (Turner, 1982, p. 15). SCT assumes that individuals can categorize themselves at three levels of abstraction: on a subordinate level as an individual person (who compares himself or herself with other individuals), on an

intermediate level as a member of a certain group (which then is compared with relevant outgroups), or on a superordinate level as a human being.

SIT and SCT describe two preconditions for the emergence of self-categorizations and group behaviors: identification and category salience. Identification means that the individual can be identified within a certain category (i.e., that he or she fits into the category, the individual identifies himself or herself with that category, and perceives this category as relevant to his or her identity (Wagner, 1994)). The concept of category salience connects the proposed processes with situational influences. On the one hand, salience depends upon the accessibility of a category within a person's cognitive repertoire. On the other hand it depends on the fit of the particular category to the given situation. For example, salience increases when a category is especially mentioned (Hogg & Turner, 1985), when a category is embedded in the context of other relevant categories (Turner et al., 1987, pp. 112f.), and especially when a category is in conflict with other categories (Wagner & Ward, 1993). If self-categorization takes place on the intermediate level as a group member, the abovementioned conditions would make group membership and social identity more salient and more relevant. SIT has been extremely fruitful in studying and explaining intergroup phenomena like ethnic prejudice, discrimination between social groups, intergroup hostility, etc. Since the pioneering work of Ashforth and Mael (1989) the Social Identity Approach has been used widely in organizational research.

Ashforth and Mael (1989) focused on the cognitive dimension of identification. This self-definitional or self-referential aspect of being an organizational member is the most important reason why an individual perceives success and failures of the organization as his or her own outcome and therefore strives for positive outcomes for the organization as a whole. A further reason being that the cognitive aspect is critical to differentiate organizational identification from related concepts such as loyalty, involvement, or commitment. I will come back to this point later.

The main prediction of SIT and SCT for organizational contexts is that the more an individual defines himself or herself in terms of the membership of an organizational group (work team, organization, occupation, etc.), the more his or her attitudes and behaviors are governed by this group membership. For the organization, this should result in greater performance, lower absenteeism and turnover, and more extrarole behavior. For the individual, higher identification should result in greater job satisfaction, higher motivation, and more physical and emotional well-being. However, it follows from the theoretical assumptions of the Social Identity Approach that organizational identification is a multidimensional concept rather than a unidimensional one. This means that four dimensions of identification, namely cognitive, affective, evaluative, and behavioral, as well as different foci (e.g., career, work group, organization, occupation) have to be differentiated

(cf. Jackson, 2002; Scott et al., 1999; Van Knippenberg & Van Schie, 2000; Van Dick, Wagner, Stellmacher, & Christ, in press). When analyzing identification and other work-related variables, it depends on the level of correspondence which of the respective dimensions and foci become relevant for the individuals' attitudes and behavior and on the salience of foci and dimensions in a given context (e.g., Van Dick, Wagner, Stellmacher, & Christ, 2002). I will come back to the multidimensionality of the concept later.

ORGANIZATIONAL IDENTIFICATION—ORGANIZATIONAL COMMITMENT

The Concept of Organizational Commitment and Work-related Attitudes and Behaviors

The concept of organizational commitment has been examined for nearly half a century (e.g., Becker, 1960). It's most recent formulations conceptualize commitment as a three-dimensional construct with the facets of affective, normative, and continuance commitment (Meyer & Allen, 1991, 1997). *Affective commitment* (AC) describes the 'integral attachment' to the organization (or parts of the organization). This type of commitment is an attitude which describes the extent to which the individual feels part of the organization as a 'family'. AC develops on the basis of material and non-material exchanges between an organization and an organizational member. *Normative commitment* (NC) reflects a feeling of obligation to stay in the organization. It denotes to what extent a person feels committed to the organization because of moral values and normative beliefs. This type of commitment is developed on the basis of an individual's general beliefs of morality on the one hand and the investment by an organization made on behalf of the individual (e.g., for further training) on the other hand. *Continuance commitment* (CC) refers to an awareness of the personal costs associated with leaving the organization. This type of commitment is determined by the interdependence between individual and organization (cf. Thibaut & Kelley, 1959) and external variables like location factors (cf. side-bets, Becker, 1960). The three facets of commitment can best be summarized as follows (cf. Petersen, 1999):

- people with strong AC stay in their organization because they want to;
- individuals with strong CC stay because they need to do so; and
- persons high in NC stay because they feel that they ought to.

Hundreds of studies, confirmed by reviews and meta-analyses (Mathieu & Zajac, 1990; Meyer & Allen, 1997), show that AC is associated, to a medium to large extent, with turnover, absenteeism, in-role and extra-role performance, job satisfaction, and employee well-being. The same has been found for

NC, but the correlations were much weaker than those between the criteria and AC. Finally, for CC, either zero correlations or in some cases negative correlations have been obtained. The only consistent finding was a negative association between CC and turnover intentions and actual turnover. The question, however, is whether it is desirable for the organization to have employees with high CC not leaving the organization but also not necessarily acting on behalf of the organization's goals. In the most recent meta-analysis available for organizational commitment, Meyer, Stanley, Herscovitch, and Topolnytsky (2002) examined the relationships between the three forms of commitment on the one hand and a broad range of correlates as well as individual and organizational outcomes on the other. The results will be summarized here in more detail.

For *job satisfaction* as a correlating variable a very strong positive correlation was found with AC (weighted average corrected correlation $\rho = 0.65$, number of studies $k = 69$, and total number of subjects $n = 23{,}656$), a medium sized correlation was found with NC ($\rho = 0.31$, $k = 25$, $n = 9{,}944$), and a small negative correlation was found with CC ($\rho = -0.07$, $k = 44$, $n = 15{,}492$). This means that employees with a high affective attachment towards their organization are much more satisfied than those with weaker AC. The same is true for NC but the relationship is much weaker. For CC, the correlation is significant but negative, which means that employees who feel more committed because of high costs of leaving are less satisfied. Considering specific components of job satisfaction, the picture is rather heterogeneous. Although every single relation between satisfaction components and AC is positive and significant, there is a relation of $\rho = 0.35$ between pay satisfaction and AC, $\rho = 0.71$ between extrinsic satisfaction and AC, or $\rho = 0.68$ between intrinsic satisfaction and AC. For actual *turnover* the analyses of Meyer et al. (2002) reveal significant negative relationships between AC ($\rho = -0.17$, $k = 8$, $n = 2{,}636$) and NC ($\rho = -0.16$, $k = 4$, $n = 970$) and also a negative but insignificant relation to CC ($\rho = -0.10$, $k = 6$, $n = 1{,}933$). For withdrawal cognitions, all relationships are higher and significant ($\rho = -0.56$ for AC, $\rho = -0.33$ for NC, and $\rho = -0.18$ for CC). Overall, individuals with higher commitment of any form are less likely to develop intentions to quit and show less likely actual turnover. Meyer and colleagues considered different measures of *attendance* and found for AC correlations between $\rho = -0.09$ with measures of involuntary absence and $\rho = -0.22$ with voluntary absence. The relationship between overall absence and the other commitment dimensions were positive with $\rho = 0.05$ for NC and $\rho = 0.06$ for CC, respectively. *Overall job performance* is found to be both positively and significantly related to AC ($\rho = 0.16$), insignificantly related to NC ($\rho = 0.05$), and even significantly negatively related to CC ($\rho = -0.07$). Finally, Organizational Citizenship Behavior is positively associated with AC ($\rho = 0.32$) and NC ($\rho = 0.24$), and not at all related to CC ($\rho = -0.01$). When looking at the individual's outcomes,

perceived *stress* is negatively related to AC ($\rho = -0.21$), and positively related to CC ($\rho = 0.14$). Finally, *conflicts between work and family* are lower for affectively committed employees ($\rho = -0.20$) and higher for individuals exhibiting higher CC ($\rho = 0.24$).

When summarizing these meta-analytical findings and other reviews on organizational commitment, it is obvious that this concept—at least in its affective component—is a rather good predictor of a broad range of work-related attitudes and behaviors. Organizational identification, however, is also a useful concept in the explanation and prediction of these important attitudes and behaviors from a different theoretical perspective. But before presenting the relation between organizational identification and work-related variables it seems necessary and useful to demonstrate first that the concept is different from that of organizational commitment.

DIFFERENTIATION BETWEEN COMMITMENT AND IDENTIFICATION

An important question that arises is whether organizational identification is conceptually and empirically distinct from organizational commitment. We argue that there is some overlap between the concepts, particularly where AC and affective identification are considered, but that both concepts should also be treated differently. The main argument for distinguishing between commitment and identification resides in the fact that commitment research and measures largely ignore individuals' sense of 'oneness' with an organization, that is, the affective, evaluative, and cognitive perception of being an organizational member (cf. Pratt, 1998; Abrams, Ando, & Hinkle, 1998). As Ashforth and Mael (1989) expressed it, 'social identification provides a partial answer to the question of <Who am I?>' (p. 21). That means an individual identifies with his or her organization because its goals and objectives are close to his or her own and the member feels part of the organization (as a 'family'). Thus, identification reflects the extent to which the *group membership is incorporated in the self-concept*, and in contrast, commitment is seen as an attitude that an individual holds towards his or her organization. But there are additional arguments why commitment and identification should be treated as distinct concepts (cf. Van Knippenberg & Sleebos, 2001). First, according to predictions of SIT and particularly SCT, identification is highly flexible and its impact on group relevant behaviors depends upon the salience of the group and on the context of interactions with other groups (see Haslam, 2001; Pratt, 2001). In contrast, commitment is seen as an attitude which, once established, is relatively stable and enduring. Second, identification and commitment develop on the basis of different sources (Pratt, 1998). Identification is seen as contingent upon the basis of shared fate and perceived similarity with the organization (Mael & Ashforth, 1992),

while commitment develops mainly because of exchange-based factors, that is the (material) relationship between the individual and the organization (cf. Tyler & Blader, 2000). Third, for developing a sense of commitment, there has to be actual exchange and affiliation between the individual and co-workers, supervisors, and, thus, the organization. In terms of the social identity approach (see the Minimal Group Paradigm above), no interaction, affiliation, and not even a desire for affiliation in the future is necessary (cf. Mael & Ashforth, 1992; Dutton, Dukerich, & Harquail, 1994). From an identity point of view one can imagine an employee who is working alone and far away from his or her organization (e.g., traveling salesperson) but who is still highly identified with the organization he or she is working for.

Consistent with this view, the concepts of commitment and identification have been found to be distinguishable empirically. Mael and Tetrick (1992) used scales for obtaining organizational identification in terms of shared experiences and shared characteristics between employee and organization and found correlations between these scales and organizational commitment and the Organizational Commitment Questionnaire (OCQ) (Mowday, Steers, & Porter, 1979) of about 0.50 up to 0.60. However, confirmatory factor analyses revealed better fits for models assuming different factors of identification and commitment than models assuming that both concepts go together in a single latent dimension. Van Knippenberg and Sleebos (2001) also successfully attempted to distinguish identification from organizational commitment in a questionnaire study. AC and organizational identification were highly correlated in their sample of 200 faculty members of a Dutch university. However, a confirmatory factor analysis assuming separate factors for the two concepts was significantly more appropriate than a model assuming only one single underlying factor. Gautam and colleagues examined the distinctiveness of identification and commitment in two studies. In the first study with 103 employees from different companies in Nepal, Van Dick, Wagner, and Gautam (2002; cf. Gautam, Van Dick, & Wagner, 2001) calculated confirmatory factor analyses. Results showed that a two-item measure of organizational identification ('I often regret that I am a member of this organization', 'When looking at my organization, there is little to be proud of'), was distinguishable from AC, NC, and CC (cf. Meyer & Allen, 1997). A model assuming three different commitment factors and an additional separate (but correlated) factor of identification fits the data better than unidimensional or orthogonal models. The second study, conducted with 450 employees in Nepal (Gautam, Van Dick, & Wagner, 2002), replicated the distinctiveness of organizational identification from AC, NC, CC, and attitudinal commitment with confirmatory factor analyses. In this study a short version of the Organizational Identification Questionnaire (Cheney, 1983) was compared with four commitment scales, namely AC, NC, CC, and attitudinal commitment. Four sets of confirmatory factor analyses testing the distinctiveness of identification and the respective

commitment dimension revealed the best solutions for correlated but separated factors in each analysis. However, in all the studies presented above, correlations between AC and identification were rather high ($0.60 < r < 0.70$).

Thus, although identification and commitment, and particularly affective identification and AC, are related, all analyses of Mael and Tetrick (1992), Van Knippenberg and Sleebos (2001), and Gautam and colleagues clearly confirm empirically the theoretically expected distinctiveness of the concepts.

ORGANIZATIONAL IDENTIFICATION, ORGANIZATIONAL PERFORMANCE, AND WORK-RELATED ATTITUDES

Meta-Analytical Findings

Unfortunately, up to now there has only been one meta-analytical review examining the relationships between organizational identification and correlating concepts (Fontenot & Scott, 2002). The results of this analysis will be presented briefly. Fontenot and Scott confined their analysis to four correlating variables: organizational commitment, job satisfaction, quit intentions, and organizational tenure. Because of this confinement, I will present single studies on other aspects of work-related attitudes and behaviors that are not covered in the meta-analysis afterwards.

Fontenot and Scott (2002) included forty-eight studies with altogether fifty-five independent samples in their analysis. In accordance with the overlap between *organizational commitment* and identification described above, the meta-analysis revealed a mean correlation of $r = 0.69$ between the two concepts. With this rather high association, one could again bring into question the distinctiveness of commitment and identification. However, the range of correlations between commitment and identification was between $r = 0.01$ and $r = 0.94$ for 11 different samples. When inspecting moderating effects, Fontenot and Scott found an effect for measurement scales (i.e., studies using Cheney's (1983) OIQ or similar versions revealed higher correlations between identification and commitment compared to research using the scales of Mael and Ashforth (1992) or modified versions of that scale). The scale of Mael and Ashforth consists of items representing the core of social identification following SIT whereas the OIQ contains items which are also—similarly to the commitment scales in the analyses—tapping outcomes like turnover intentions. The relationship between identification and *job satisfaction* was $r = 0.47$ across studies with a significant moderating effect of organization type. The correlation was weaker in the government/non-profit samples ($r = 0.35$) compared with the service/professional samples ($r = 0.62$). The overall relationship between identification and *intentions to quit* was $r = -0.47$ across samples, again with significant differences between organization types ranging from $r = -0.43$ in the

government/non-profit sector up to $r = -0.59$ for the service/professional type. Finally, for the relationship between identification and *organizational tenure* an overall correlation of $r = 0.28$ across samples was obtained.

To summarize, this meta-analysis reveals that organizational identification is related to job satisfaction and turnover intentions to a substantial extent. However, every meta-analysis is only as good as the single studies included and the quality of a meta-analysis increases with the number of studies it considers and with the number of moderating factors which can be analyzed. Unfortunately, the data base of Fontenot and Scott (2002) is incomplete in several respects and also the aim of the meta-analysis to explore relations between identification and the other concepts tested here, is not as thorough as one would like it to be. There are, for instance, several studies on the relation between identification and performance or between identification and elements of extrarole behavior, which will be reviewed later, that could have been integrated in Fontenot and Scott's analysis. Nevertheless, the attempt of Fontenot and Scott is pioneering work and is hopefully ground-breaking for future reviews and meta-analyses.

Because Fontenot and Scott (2002) excluded an analysis of the identification performance relation, some studies on this issue will be presented later. Before doing so, however, some more details on the nature of organizational identification will be presented. This seems highly relevant in the light of the heterogeneity of the meta-analytical findings and the variance in the results of single studies. Taking a closer look at the components of identification might help to explain empirical differences.

THE NATURE OF ORGANIZATIONAL IDENTIFICATION

Dimensions and Foci of Organizational Identification

We propose that it is necessary for an analysis of identification in organizational contexts to view identification not as an agglomerate of diverse aspects but, rather, to consider each of its aspects separately. There are two relevant aspects to differentiate: dimensions of identification and foci of identification. Henri Tajfel (1978) defined social identity as 'that part of an individual's self-concept which derives from his knowledge of his or her membership of a social group (or groups) together with the value and emotional significance attached to that membership' (p. 63). Accordingly, three dimensions of social identity can be distinguished, namely: (1) a cognitive component, which is the knowledge of being a member of a certain group; (2) an affective dimension, which is the emotional attachment to that group; and (3) an evaluative aspect, which describes the value connotation assigned to that group from outside (Van Dick, 2001). Other researchers in the field of ethnic identity research have added a fourth component, which represents the conative or behavioral aspect of identification (e.g., Phinney, 1991; cf. Jackson, 2002).

A range of authors attempted to operationalize the three dimensions already proposed by Tajfel (e.g., Brown, Condor, Matthews, Wade, & Williams, 1986; Hinkle, Taylor, Fox-Cardamone, & Crook, 1989; Karasawa, 1991). Klink, Mummendey, Mielke, and Blanz (1997) conclude that most attempts to operationalize these three dimensions ended up in unidimensional solutions or, at best, in solutions with two-factorial structures. The two factors represented identification as a group member on the one hand, and positive or negative evaluations, respectively (i.e., affective and evaluative identification combined), on the other. Up to now there are no attempts in basic research outside the ethnic identification studies to include conative identification. Very recently however, Jackson (2002) presented an overview on the conceptualization of different dimensions and argued for the existence of four different dimensions. In addition to the already discussed cognitive, affective, and evaluative dimension, Jackson presented the work of Brewer and Silver (2000), Deaux (1996), Hinkle et al. (1989), Jackson and Smith (1999), and Jackson (1999) as theoretical and empirical evidence for the existence of a fourth component that he called common fate but that also can be termed behavioral identification when looking at the concrete items used in this research (e.g., 'I support the ingroup', Jackson, 1999).

In addition to these dimensions, different foci of identification should also be distinguished. Following the basic assumptions of SCT, individuals can categorize themselves on different levels (see above), from which two are relevant for the present context: categorization as unique individuals (personal level), or categorization as group members distinct from members of other groups (intermediate or group level). Levels of self-categorization become salient through contextual changes, as, for instance, through comparisons between relevant comparison objects on a higher level of abstraction. Thus, individuals can categorize themselves on a personal or a group level. Translated into organizational identification, an individual can identify himself or herself (1) with his or her own career (personal level), (2) on a social level, with different subunits within his or her organization (e.g., work groups and departments), or (3) with the organization as a whole or also with higher level categories (e.g., the occupational group).

When the proposed dimensions and foci are combined, a matrix, as presented in Figure 6.1, results.

Empirical Evidence

In several recent studies the covariation of ingroup identification, work-related attitudes, and group productivity have been analyzed in work contexts considering different dimensions and/or foci of identification as proposed above. Van Knippenberg and Van Schie (2000) found correlations in two samples (university faculty members and local government employees), between identification on the one hand, and job satisfaction, turnover

Dimensions	Personal identity	Social identity		
	Career	Team	Organization	Occupation
Cognitive				
Evaluative				
Affective				
Behavioral				

Foci

Figure 6.1 Combination matrix of dimensions and foci of organizational identification.

intentions, and job involvement on the other. For both samples, work group identification, as the closer focus, was the better predictor for the different criteria compared to the broader focus of identification with the organization as a whole. Different dimensions of identification, however, were not distinguished in this research.

Van Dick and Wagner (2002) conducted two studies with German schoolteachers and found, in their first study, that general identification of the participants with their occupational group was associated with work-related attitudes and self-reported behaviors. Teachers who identify themselves more strongly with their occupational group report more physical well-being, more job satisfaction, more job motivation, and perceive their jobs as more motivating and meaningful compared to less identified participants. In the second study, van Dick and Wagner differentiated cognitive, evaluative, and affective occupational identification, team identification, and contribution to the team. Results showed that affective occupational identification was the best predictor of physical well-being, intentions of early retirement, and self-reported citizenship behaviors, whereas team identification was associated with absenteeism.

Ellemers, de Gilder, and Van den Heuvel (1998) considered career-oriented commitment, organizational commitment, and team-oriented commitment in a questionnaire study among a representative sample of the Dutch population ($N = 690$). The authors found that these three forms of commitment are distinct constructs. Measuring work-related behaviors (e.g., working hours, satisfaction, absenteeism, and overtime) one year later, Ellemers and colleagues found that these forms of commitment have differential impact on specific behaviors. For example, team-oriented commitment was the best predictor for working overtime, career-oriented commitment predicted voluntary job change, and organizational commitment was correlated positively with work satisfaction and negatively with applications for other jobs. The results were cross-validated in a second study among 287 employees of a financial service organization in Belgium.

In another series of studies, Van Dick and colleagues (Van Dick et al., in press) simultaneously investigated the impact of different foci *and* dimensions of identification in samples of schoolteachers and bank accountants. Following Figure 6.1, identification was assessed with respect to different foci (career, team, organization, and occupation) using items that tap all four dimensions within each focus. By means of confirmatory factor analysis, Van Dick and colleagues could show that models assuming dimensions and foci fit the data much better than models assuming no latent factors at all or just the different foci as latent factors. Furthermore, correlation and regression analyses revealed that the different foci and dimensions are differentially associated to work-related attitudes and behaviors. It was for example, the corresponding focus of identification that was more closely related to different forms of organizational citizenship behavior (OCB) (e.g., team identification with OCB on behalf of team colleagues and career identification with OCB on behalf of one's own qualification, cf. Christ, Van Dick, Wagner, & Stellmacher, 2003). Within the respective foci, the different dimensions had differential impact, as for instance the behavioral aspect of identification which was most closely related to OCB. Other relations occurred between the cognitive aspect of team identification and perceptions of the team climate or between the affective dimension of organizational identification and turnover intentions.

IDENTIFICATION IN THE CONTEXT OF ORGANIZATIONAL MERGERS

Mergers and acquisitions become more and more important in the global competition of markets and industries. In 1999, for example, nearly US $2.5 billion had been invested in acquisitions (Holson, 1999). The expected positive effects of synergy and cost reduction, however, had not been met. Cartwright and Cooper (1992) state that more than half of all mergers do not reach the expected financial gains, Marcks and Mirvis (2001) recently conclude that two-thirds of the total number of mergers and acquisitions fail to meet financial and strategic goals. Terry (2001) explains these failures with the fact that the human factor is largely neglected in the preparation and planning phase of mergers. In comparison to economical and technical aspects, managers often underestimate the human side of the merging process and Terry also makes recommendations of how to integrate the human factor into the planning of a merger or an acquisition.

The Social Identity Approach proposes that the interplay between certain sociostructural conditions determine the influence of the merger on employee's attitudes and behaviors. The main conditions are status of the groups involved, legitimacy of status differences, and permeability of group boundaries:

1 *High versus low status*. Any relationship between two organizations involved in an organizational merger can be analyzed around the question whether the two groups are of equal status or not. The real and objective differences are not so important here, however, but the *perception* of differences by group members is decisive. Classical examples are ethnic minorities, who perceive themselves as inferior in comparison to the local majority population in virtually all countries. Or, for instance, managers and supervisors have a higher status than their subordinates in an organization by definition.
2 *Legitimacy versus illegitimacy*. Members of high or low status groups can perceive the differences in status as more or less legitimate. For example, the status differences between aristocracy and the ordinary people were presumably accepted before the French Revolution as legitimate because they were thought to be created by God. As another example, for many countries in the middle of the 20th century, it was still unusual for a woman to study at a university or otherwise qualify for a job. The role of women as mothers and housewives was seen as natural some fifty years ago, and thus the superiority of men in the business world was widely accepted. In both areas, much has changed since. The status difference between subordinates and supervisors in organizations is commonly accepted as legitimate due to the higher degree in education or better performance in the past that led to a promotion in the case of the supervisor.
3 *Permeability versus impermeability*. Individuals can perceive group boundaries as permeable or impermeable relatively independently of legitimacy and status relations. For example, a woman cannot change into the group of men (with relatively few exceptions), a colored person cannot become white. However, an immigrant can become a citizen of the country he is living in by acquiring the respective nationality. Similarly, a subordinate can advance to be a supervisor by training and promotion.

I will now take a look at the sociostructural relations of organizations resulting from a merger. There is an expression ‘there is never a merger of equals’. The difference between a merger and an acquisition is mainly a legal issue. In an acquisition (‘fusion by integration’), one or more companies are taken over by another company, and their assets are also transferred to the acquiring company (cf. Wöhe, 2000). Whereas in a merger (‘fusion by new launch’), assets of two or more companies are all transferred to a newly launched company (cf. Wöhe, 2000). In practice, however, for the staff of merging companies, a merger has the same meaning as an acquisition. This is due to the fact that there is always an acquiring and an acquired organization, this means that there are (virtually) always different status relations between both parts of the organization that merge into one new organization. The fusion of

organizations has always a certain background, often it is the economical weakness or strength of one of the former organizations, respectively, that leads to an acquisition. The takeover can be friendly (i.e., in mutual consensus), or hostile (i.e., an organization with high share capital acquires another organization against the will of management and employees), the latter has been observed more frequently in recent years. We can easily imagine the particular sociostructural conditions as perceived by the members of both former organizations after the fusion. Members of the acquired organization will most likely feel to be members of the inferior organization (low status), especially so if the acquisition averted the bankruptcy of their economically weak organization. If the fusion, however, took place in mutual consensus or even on initiative of the acquired organization, and the negotiations proceeded in a fair and transparent context, status differences are perceived as more legitimate than when the takeover was hostile (low legitimacy). After all, each single employee of the inferior organization might find that status differences are stable and that he or she has only a limited chance to be promoted in the new organization because all management positions are held by members of the superior organization. However, when the acquiring organization does not make promotion decisions based on affiliation to the former organizations but instead does so on individual achievements, the employees may see even better chances of being promoted after the merger (high permeability).

Social Identity Theory predicts that situations in which status differences are perceived as being illegitimate and the group boundaries as impermeable should lead to dissatisfaction with the merger. Put differently, in order to avoid negative consequences of a merger, relations should be equal or, if this is for some reason impossible, profiled as legitimate and alterable.

Empirical Evidence

First of all, a distinction should be made between field and laboratory studies. Field studies are mainly conducted in the form of employee surveys, measuring attitudes and behavior patterns of the employees involved in the merger. This kind of research strategy has the advantage that problems resulting from the fusion can be observed in a realistic context and that an intervention can be planned for the company studied at hand. Whereas in laboratory studies the manipulation's impacts are examined in 'virtual' organizations under highly controlled conditions. This is relatively far from reality (sometimes very far!). However, it has the advantage that theoretical assumptions about causes (i.e., the different conditions) and effects (i.e., attitudes and behavior of employees) can be tested.

Evidence from field study research

Terry and her colleagues (Terry, 2001, 2003; Terry & Callan, 1998; Terry, Carey, & Callan, 2001; Terry & O'Brien, 2001) have carried out a number of studies in order to test theoretical assumptions in different organizations before and after a merger. The results will be reported briefly. The first study was conducted by Terry and Callan (1998) on more than 1,000 employees of two hospitals immediately before a planned fusion. Here, the influences of the different status relations were examined. One hospital was a metropolitan teaching hospital of high status, the other one a relatively low status local area hospital. Participants answered questions on the perceived threat the planned fusion would pose, and they were asked to evaluate their own organization and the other organization on a total of nine dimensions. Three of these dimensions were described as status-relevant by employees of both organizations in a discussion before the questionnaire was created (e.g., high prestige in the community, challenging job opportunities, high variety in patient type). The remaining dimensions were judged as relatively irrelevant for the status of a hospital (e.g., little industrial unrest, good relations among staff, modern patient accommodation). Social Identity Theory would assume that particularly members of the low status group will show ingroup bias, that is evaluate their own group more positively than the other group in order to protect their self-esteem that is threatened by the impending fusion with a higher status organization. Furthermore, Terry and Callan predicted that employees of the lower status organization would describe their own group as more positive—especially on dimensions which are less relevant for status relations. Dimensions that are more status relevant, however, should be less prone to ingroup bias shown by the low status group because the other group is objectively better on these dimensions (otherwise they would not be 'superior'). The results confirmed the hypotheses. On the whole, the high status group showed expectedly less ingroup bias because they do not have to protect their self-esteem as the fusion poses little danger to them compared with the lower status group. Members of the lower status organization exhibited ingroup bias particularly on less status-relevant dimensions. In the following study on 365 pilots and engineers of two airlines after a merger the results of the first study could be confirmed (Terry et al., 2001). Members of the lower status group (a national company) assessed their own organization in comparison with the higher status organization (an internationally operating company) as more positive on status-irrelevant dimensions. Additionally, the strength of employees' identification with the new organization after the merger and the perceived permeability of boundaries between the two former organizations after the merger were assessed in this study ('If you wanted to, how easy would it be for you to become involved in the activities and work previously done by members of the other pre-merger organization?'). Members of the lower

status organization were less identified with the newly merged organization, as predicted. This was especially true for those employees that perceived boundaries as impermeable. Perceived permeability correlated positively with satisfaction, commitment, and identification.

To test social identity predictions with respect to perceived legitimacy, Terry and O'Brien (2001) conducted another study. They asked 120 employees of an organization that originated from a recent merger between two scientific institutions about their perception of status, legitimacy, identification, work satisfaction, and their assessment of whether both former organizations became part of a common new ingroup after the merger. Members of the low status group again showed more ingroup bias, less work satisfaction, and identification with the newly created organization. In accordance with predictions made by Social Identity Theory, however, members of the lower status group showed more positive attitudes when status differences were perceived as legitimate.

Van Knippenberg and colleagues replicated these findings in another series of field studies. Results of their first study (Van Knippenberg, Van Knippenberg, Monden, & de Lima, 2002) on members of staff of two municipalities which had been merged prior to the study revealed lower identification with the postmerger organization for members of the lower premerger organization compared to members of the organization that was dominating the merger process. In a second study on employees of a merged training institution, results were confirmed. Van Knippenberg and Van Leeuwen (2001) integrated the theoretical arguments in a social identity model of postmerger identification. The model assumes that besides status and dominance relations between both former organizations differences between the former organizations and level of identification before the merger have an influence on the identification with the new organization after the merger. When a person identifies strongly with his or her organization prior to the merger, he or she will also identify more strongly with the newly merged organization because the former organization is now part of the new one. If, however, the differences between the former organizations are perceived as being too large, the feeling of being part of a common organization will set in less quickly because the differences will make the existence of the former organizations more salient. The connection between these determinants and identification after the merger will be mediated by an additional factor, namely by the continuity perceived by employees after the merger. If little change occurs after the merger, the probability increases that a strong identification with the former organization transfers to a strong identification with the postmerger organization.

Finally, a study by Bachman (1993) should be mentioned because it tested the Common Ingroup Identity Model (CIIM) (cf. Gaertner, Bachman, Dovidio, & Banker, 2001) which might be influential for the formation of mergers (cf. Gonzales & Brown, 1999). This model translates predictions by

Social Identity Theory into a feasible approach for overcoming problems and animosity in intergroup processes. In short, the CIIM specifies those conditions that lead to a common (in)group identity in contact situations. Bachman asked 229 executives of recently merged banks and found the predictions of their model confirmed:

- Turnover intentions were considered as a crucial outcome variable indicating a merger's success or failure. Turnover intentions were proposed to be directly influenced by the identification with the postmerger organization. Results indeed reveal that higher postmerger identification was negatively associated with turnover intentions.
- Postmerger identification in turn is determined by an 'us versus them' orientation. The more a person identifies with the former organization ('us') and perceives it to be different from the other organization ('them'), the lower is the identification with the postmerger organization.
- 'Us versus them' orientation is influenced by perceived threat (the more threat, the stronger is the 'us versus them' orientation), contact between members of both organizations (the more contact members of the former organizations have, the lower is this orientation), and task similarity. In terms of the theory, however, a high similarity of tasks, products, and services was assumed to generate a stronger 'us versus them' orientation, so that group members could keep their distinctiveness. Yet, the results point in the opposite direction. The more similar the tasks are, the lower was the 'us versus them' orientation.
- Eventually, the perception of the socioemotional orientation of the postmerger organization becomes relevant. By socioemotional orientation Gaertner et al. (2001) mean that the new organization is concerned with the welfare of employees, communicate fairly and transparently about the processes of the merger, and allow members of staff to exert influence. If employees have the impression that the organization shows such a positive socioemotional orientation, less threat will be perceived, a lower 'us versus them' orientation develops, and finally identification with the postmerger organization increases.

Taken together, field studies impressively show in realistic contexts that status relations between groups before and after a merger, as well as the perception of legitimacy and permeability are related to postmerger identification, ingroup favoritism, and work satisfaction. The problem of field studies, however, is that cause and effect cannot be separated. However, for practitioners, it is essential to know this cause-and-effect relation. Only when one knows the causes, can measures be taken to foster or to remove the causes. Therefore, some results from laboratory studies creating the

appropriate conditions and systematic variation will be presented in the following section that allow a clear statement on causality.

Evidence from the lab

The first study that tested the predictions of Social Identity Theory in terms of 'merging processes', was conducted by Haunschild, Moreland, and Murrell (1994) where two conditions were varied. In a 'nominal' two-person group (control group), two participants worked in one room at the same time, but each participant on his or her own. In the merger-condition, two participants worked in a real dyad by discussing a problem and agreeing on one mutual solution to it. Afterwards both persons were brought together with another dyad and worked on the task again—this time always together. In the merger-condition more ingroup favoritism was shown than by persons who had previously worked in nominal groups—and thus did not develop a group feeling.

Van Knippenberg and Van Leeuwen (2001; see also Van Leeuwen, Van Knippenberg, & Ellemers, 2000a, 2000b) led participants in their experimental study believing that they were members of one of two four-person groups, namely of a blue or a red group, respectively. In reality, however, all persons were assigned to the blue group, the red group did not exist. Then, subjects were asked to work on computer-mediated brainstorming tasks. Each subject saw the group membership (blue group) on the monitor and was told that for the evaluation of the task a common file with all the results would be created for each group. After the subjects had worked on the task alone, they were asked about their identification with the blue group by a questionnaire. Then, half the subjects worked on a further brainstorming task and were again asked about their identification (control condition). The other half (merger condition) was told that they should work on the next task with the other three members of the blue group and four persons from the red group, and were then asked about their identification with the new group (consisting of eight people). As a result, identification of the participants in the control group after the second task correlated strongly with their identification after the first task, while the correlation in the merger-condition was much weaker. This result confirms the assumptions about continuity in the model of Van Knippenberg and Van Leeuwen—when discontinuity is experienced, identification decreased in comparison to the control condition.

In a further experiment (Van Leeuwen et al., 2000a, experiment 2), the same experimental layout was chosen, but now three merger conditions were compared. Here, the representation of the premerger-group in the post-merger group was varied. In the low continuity condition participants (who had all been members of the blue group) were told that the computer had randomly chosen that the blue group would be completely broken up for the second task and that subjects would now be part of a red group consisting

of eight people. Conversely, in the high continuity condition members of the formerly red group were assigned to work with the blue group, consisting of eight people. In the condition with the equal representation, subjects were told that members of the blue group would now work together with three other members of the blue group and four members of the red group in a new violet group of eight persons. In the conditions with equal and high representation of the formerly blue group a high correlation between identification prior to and after the merger resulted, while no such correlation was found in the condition with lower representation.

Altogether, results from laboratory studies also confirm the assumptions made by the Social Identity Approach. Status, legitimacy, and stability of relations before and after a merger determine the attitudes and identification of employees to a great extent.

ORGANIZATIONAL IDENTIFICATION AND PERFORMANCE

Since the work of Taylor (1911) people in organizations are often suspicious of employees working together in groups. Taylor himself considered groups as something like the root of evil (i.e., responsible for lateness, undermotivation and reluctance to exert oneself). The remedy for problems like these lie, according to Taylor, in individualizing the worker (e.g., by rewarding and paying him or her on the basis of individual performance). There are indeed studies demonstrating that group performance often falls short of mean individual group members' performance. This holds true for physical tasks like rope-pulling (Ingham, Levinger, Graves, & Peckham, 1974) or shouting (Latané, Williams, & Harkins, 1979), as well as for cognitive tasks like brainstorming (Diehl & Stroebe, 1987; Stroebe & Diehl, 1994). The effect of lower group performance is most prominent in additive tasks (i.e., tasks in which the sum of individual contributions leads to the group product). Further research (Steiner, 1972; cf. Stroebe & Frey, 1982) demonstrated that losses by group performance can be traced back to problems of coordination between group members as well as motivational losses. Motivational losses emerge because group members cannot identify their individual inputs—this is termed social loafing (Latané et al., 1979)—or because they think that their individual contributions are not really needed (free riding; Dawes, 1980). Stroebe, Diehl, and Abakoumkin (1996) have shown that the elimination of motivational losses results in motivational gains and increased group productivity. In addition, different researchers (e.g., Harkins & Szymanski, 1989) have argued that social loafing and free riding in groups mainly occur because the 'groups' used in most of the empirical paradigms are of no or very limited meaning for subjects. These reviewers expect increased performance (i.e., social facilitation—greater effort in the presence of others; cf. Zajonc, 1965) or social laboring effects (greater effort

on group tasks; cf. Brown, 2000), if group membership becomes meaningful and important for the subject. Meta-analyses confirm these assumptions (Karau & Williams, 1993; Williams, Karau, & Bourgeois, 1993). Up to now it is unclear which psychological variables are affected by making group membership more meaningful. One explanation might be that participants in the studies feel a higher degree of identification with natural groups compared to artificial groups (cf. Jehn & Shah, 1997). In accordance with this assumption it can be proposed that group performance is influenced by group members' identification with their group (cf. also Haslam, 2001, p. 272). If this hypothesis holds true this would also imply that, under certain conditions, social loafing or free riding effects can be modified and compensated for by a heightening of group members' identification.

For behavior in groups, SIT and SCT propose that an increase in identification (given a certain degree of category salience) or an increase in category salience (given a certain degree of identification) will increase attraction to the group, attraction between group members, and an assumed attitudinal similarity between group members. It can also be proposed that for groups whose goal is the preparation of a joint group product, as is the case for working groups or organizational groups, the described increase in identification and salience will heighten group members' productivity. There is empirical evidence which is in accordance with this assumption. All of these studies concentrate on group identification (i.e., the medium level of self-categorization in terms of SCT, for overviews see Brown, 2000; Haslam, 2001; Ouwerkerk, Ellemers, & de Gilder, 1999). Some of this research will be presented in the following paragraphs.

A number of studies have shown that making intergroup comparisons salient increases group productivity and related behavior. James and Greenberg (1989) conducted two experiments with university students. In study 1, a comparison between universities was made implicit by the notion that the study would be realized both in the participants' own university and in a related university. Salience of university affiliation was manipulated by using written instructions either on neutral paper or on paper in university colors (see also Worchel, Rothgerber, Day, Hart, & Butemeyer, 1998, study 3). In study 2, the comparison between the participants' own university and a comparison university was either implicit or explicit. In both experiments participants showed an increase in individual performance on an anagram solving task in the ingroup-salience compared to the non-salience condition. Other studies have increased ingroup salience even further in that they brought groups into conflict over scarce resources. Worchel et al. (1998, experiment 1) showed that under these conditions group performance even outperforms mean individual performance. Similar results were found by Erev et al. (1993), who showed that fruit pickers reduce their performance when paid on the basis of mean group productivity. This loss in performance can be compensated, however, when working groups compete against each

other for an extra bonus (see also Bornstein & Erev, 1997). These studies are in good accordance with the hypothesis that ingroup salience and ingroup identification influence productivity of group members. However, evidence is at best indirect if we assume that the described experimental manipulations in fact heighten ingroup salience or ingroup identification.

Other studies more directly have set measures of ingroup identification in relation to group performance. Jehn and Shah (1997) found that friendship groups of business students outperformed acquaintance groups in group cognitive and motor performance because of a higher degree of group commitment in the friendship groups. In a similar manner, Arnscheid (1999, study 5) compared groups of high versus low cohesiveness built on the basis of interpersonal preferences. Overall high cohesive groups outperformed low cohesive groups in brainstorming tasks. James and Cropanzano (1994, study 4) discovered positive correlations between loyalty towards student's universities and involvement in university activities. In two further studies (1994, studies 1 and 2) the same authors found that dispositional group loyalty of group members leads to better individual performance in anagram solving tasks when the intergroup context was made salient through intergroup comparisons. The strongest empirical support for the influence of group identification and salience on group performance was found in an experiment conducted by Karau and Hart (1998). These authors manipulated group cohesiveness through bogus feedback of mutual attitude similarity within groups and let their participants work either under coactive (individual performance will be compared with other individuals) or collective working instructions (comparisons between groups). Social loafing occurred under collective comparison and low cohesiveness, whereas participants in high cohesive collective conditions performed as well as participants in the coactive conditions. In another series of studies, Tyler, Degoey, and Smith (1996) revealed correlations between a measure of group pride and extrarole behaviors in family, work, and university context.

IDENTITY AND IMAGE IN ORGANIZATIONS

Closely connected to the identification of employees with their organization is the image or identity of the organization itself. One aspect of organizational identification from a social identity perspective is the evaluative component which indicates to what extent one experiences that the organization is perceived as positive or negative from the outside world. Besides the attributes which one has as an individual and which are also evaluated by others, the external assessment of the group one belongs to is an essential, self-esteem influencing component of an individual's identity. Dutton, Dukerich, and Harquail (1994) give some examples of organizations that have a negative image (e.g., the company Exxon after the Valdez oil spill; see also Pratt,

2000b) and the negative consequences that might result for the employees. However, Dutton and her colleagues argue that it also has positive consequences if employees believe that the organization is seen as positive. They refer to this effect as 'basking in reflected glory' (cf. Cialdini, Borden, Thorne, Walker, Freeman, & Sloan, 1976). As one is a part of the organization, at least if one identifies highly, the success of an organization is also one's own success, and thus the positive image is in turn a part of one's self-concept.

Dutton et al. (1994) summarize their theoretical arguments in the following hypotheses for which they can also provide some empirical evidence mainly in the form of narrative cases:

- The higher the perceived attractiveness of the organizational identity, the stronger will the employees identify with this organization.
- The larger the similarity between the attributes with which an employee identifies and the attributes that account for the image of the organization, the stronger is the identification.
- The more the identity of an organization differs from that of other comparable organizations, the easier will it be for employees to identify with it.
- The more the image of an organization increases the personal self-esteem, the stronger will the identification of employees be with their organization.

Dutton et al. (1994) differentiate between two organizational images. The first image, that is the perceived organizational identity, is determined by the characteristics of the organization which are perceived as enduring and central by the employees and the attributes that distinguish their own organization from other organizations. The second image, which is referred to as the constructed external image, results from the belief of the employees about the external evaluation of their organization.

Dutton et al. (1994) integrated a number of further variables such as contact with the organization in the model, which seem to be less relevant. However, the model points out that not only the perceived identity, but also the perceived external image of the organization influence the identification of employees. The strength of the impact in turn depends on the perceived attractiveness of identity and image, respectively. In addition to this, one can assume that identity and image are not perceived independently of each other: an employee that experiences a positive perception of the organization from outside, will presumably perceive the identity more positively himself or herself and vice versa. However, there might be situations in which a member of an organization that is evaluated negatively from outside (e.g., employees of a nuclear power plant) will try especially hard to see the positive side of his organizational identity and identify with these positive aspects, for

the same reason of maintaining positive self-esteem. Hence, nationalists are often especially proud of their country *because* they feel negatively evaluated by other nations. In these cases, however, a connection between identity and image also exists. There are some feedback loops from identification to perceived attractiveness of identity and image in the model. Dutton and colleagues assume that when a certain level of identification is reached, it will react backwards to perceived identity. When I identify with a group, it becomes part of my self-concept and in order to enhance it I will evaluate the identity and image of the group more positively. In the main the model seems plausible, but has not been tested thoroughly yet.

SOME PRACTICAL IMPLICATIONS FOR THE MANAGEMENT OF IDENTITY AND IDENTIFICATION

Implications for Mergers and Acquisitions

According to Gaertner, Dovidio, and Bachman (1996), a common ingroup identity is the key for postmerger success. A common ingroup identity can be fostered by giving the members of the postmerger organization the feeling of being members of a larger whole that consists of the two premerger organizations ('Us' and 'We'), instead of stressing the existence of the premerger organizations as distinctive entities ('We' versus 'Them'; cf. Gaertner et al., 2001). A common ingroup or one-group identity can be increased by introduction of measures fostering feelings of cooperation opposite to competition. Following Rousseau (1998) and van Knippenberg and van Leeuwen (2001), the employee's sense of continuity is crucial to make an organizational merger successful. When employees perceive the change as so complete that nothing of the former identity can be preserved, it has enormous negative consequences. These consequences are often described in the literature and reported in the news when looking at large-scale failures like in the Daimler–Chrysler example or in the case of BMW and Rover. Or, to put it differently, when employees perceive that the merger does not affect their style and climate in their respective work team (i.e., continuity in the working environment is ensured), identification with the premerger organization can be translated into the newly developing larger whole.

In general, managers can promote identification with the postmerger organization by highlighting the common organizational membership and a shared common fate between the two previously separated organizations. Very practical examples to foster the sense of oneness between employee and organization are given by Rousseau (1998). She describes the cases of Southwest Airlines and other firms that reward employees with additional bonus checks or stock options each time a common goal is achieved. This allows employees to participate in the organizations' success and fosters a sense of common fate. These formal reward systems, however, also have

shortcomings by putting the employee–employer relationship on a material basis more than might be necessary and research has shown that identification is not primarily a matter of material exchange but more of pride and respect an employee feels for being a member of a certain company (e.g., Tyler & Blader, 2000). Another identity based means can be to emphasize the competition between the postmerger company and other companies which also legitimates the fusion. Particularly for employees of the smaller partner in the merger legitimacy and the possibility of participation in the process are relevant for the development of identification with the new organization.

General Implications

Managers who want to change their employees' identification should not implement global and unspecific measures. It seems more appropriate and more likely to create positive effects by implementing interventions that are carefully planned to correspond with the desired focus or dimension of identification managers want to change. If, for example, the team climate in an organization is perceived as problematic, nothing will change if the organization as a whole undertakes a corporate identity program. However, it might be more helpful to design programs that enhance team spirit and team identification of single units within that organization. Or, to give another example, if the aim of an organizational change program is the reduction of somatic complaints of employees, it would be most appropriate to deal with the evaluative dimension of members' identification. This could be accomplished, for instance by working on a positive image for the organization. How image and identity can be managed is described elsewhere. Van Knippenberg (2002), for example, discusses strategies such as decategorization, crosscategorization, or recategorization of the different categories involved which can help to increase employees' attachment to the organization as a whole. The management of multiple identifications seems particularly relevant in the light of the findings with respect to different foci of identification (see Ashforth & Johnson, 2001; Scott et al., 1999). Finally, Smidts, Van Riel, and Pruyn (2001) have demonstrated the impact of information and a climate of communication on organizational identification which seem particularly relevant for affective identification.

What are the practical implications of the assumption and empirical evidence of the relevance of category salience? As Hogg and Terry (2000) pointed out, one way to use the impact of category salience is 'benchmarking'. This means that organizations can increase employees' identification with the organization by specifically emphasizing other organizations as a comparison object. In turn, this might have an impact upon the organization's image and prestige. This could either be initiated on an interorganizational level, but also within the organization by introducing a benchmarking for work groups.

Recently, Haslam and colleagues (Haslam, Eggins, & Reynolds, 2003; Eggins, Reynolds, & Haslam, 2003) presented a very comprehensive model for the management of organizational identification(s). In their model of Actualizing Social and Personal Identity Resources to enhance organizational outcomes (ASPIRe) the authors propose four phases for the development of identification in the organization and its groups.

To conclude I hope to have demonstrated that organizational identification is a fruitful concept for the analysis of organizational behavior. Organizational identification is similar to but also different from organizational commitment. Particularly the viewpoint of the Social Identity Approach can contribute to a deeper theoretical understanding of the linkages between the organizations' image, the employees' identification, and thus individual performance and organizational effectiveness. As I have outlined at the beginning and the end of the chapter, the understanding and management of identification in organizational contexts seems to be more relevant than ever.

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Chapter 7

VIRTUAL TEAMS: COLLABORATING ACROSS DISTANCE

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BACKGROUND AND CHAPTER OVERVIEW

Virtual teams (i.e., a group of people working towards a common goal, yet collaborating across distance) are becoming increasingly common. As organizations become more global and reorganize and outsource parts of their business, there is greater emphasis on crossfunctional, crossorganizational, and crossnational collaboration. Such collaboration usually entails working across distance, as it often is not practical to physically locate everyone in the same geographic place. Moreover, having local expertise in the areas that the organization needs to do business is valuable, and being able to access the diversity of this expertise and knowledge at different locations is a competitive advantage. Working together when apart also has cost savings in terms of reduced travel expenditure and time lost to travel or jet lag.

Another force that has aided the proliferation of virtual working is advances in technology. Over the last two decades, increasingly affordable and effective communication technologies have become available to support virtual teams. Prominent examples are electronic mail (email), videoconferencing, and online document sharing facilities. The emergence of these technologies, and the drop in price of many of them, have made virtual teamworking a possibility for many organizations. However, despite the potential advantages of working virtually, there are also some difficulties, particularly with regards to building team relationships and coordinating activities, such as sharing and making use of dispersed knowledge. These

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problems need to be addressed to help ensure the effectiveness and viability of virtual teamworking.

The way of working we consider in this chapter has been given a variety of different labels including ‘virtual teams’ (Lipnack & Stamps, 2001), ‘global collaborations’ (Herbsleb, Mockus, Finholt, & Grinter, 2000), ‘distributed workers’ (Hinds & Bailey, 2000), and ‘geographically dispersed teams’ (Cramton, 2001). Despite these variations, the essence of what these labels refer to is the *dispersion of people who have to work together*. Such teams may be dispersed in time as well as space, so that they may be in the same time, but different place, different time and different place, or even different time but same place (Mittleman & Briggs, 1999). Dispersion usually means that communications technologies are used to enable collaboration. Indeed, the term ‘virtual team’ is often used to indicate that dispersed colleagues work together mostly via technology rather than face-to-face.

The difference between co-located and virtual teams is a continuous rather than dichotomous one (Cohen & Gibson, 2003). For instance, co-located teams also use communications technologies such as email, telephone, and voicemail, sometimes as much as virtual teams (Mortensen & Hinds, 2001), or even more so (Armstrong & Cole, 2002). What virtual teams tend to lack, however, is the proximal, face-to-face contact that co-located teams can achieve more easily, and so virtual teams often have to rely more heavily on technology-mediated communication. The degree of a team’s ‘virtualness’ can be seen as a function of the percentage of time spent working apart and level of technological enablement (Griffith & Neale, 2001).

The research literature in this area is in its infancy, but growing rapidly; thus, the time is right to take stock of the work that has been conducted and consider avenues for future research. Whilst it is true that much of the writing in this area remains either theoretical, speculative, or experiential in nature, there is also an increasing amount of systematic empirical work. Admittedly, until recently, a great deal of research relied on *ad hoc* student groups engaged in lab-based tasks although more realistic studies are emerging on long-term student project teams and employees of organizations. Our aim in this chapter is to present and integrate this research. Given space limitations, not every study or book related to virtual working can be mentioned here, although we aim to illustrate the main issues and current areas of interest.

First, within this chapter, we explore the literature regarding the factors that make virtual teams different to co-located teams. These factors are the physical dispersion of team members and the impact of communicating primarily via technology. Second, we illustrate the issues related to the nature of the team that can vary between virtual teams (team diversity, task, and broader organizational context). The implications of these core features and the nature of the team for the processes and outcomes of virtual teamworking will be explored. Third, with this as background, we

discuss two broad areas that have received much interest in the virtual teamwork literature, namely team relationships, and sharing and using dispersed knowledge. These key collaborative processes are likely to be affected by the core features and specific nature and context of virtual teams. Finally, we offer some implications for practice, focus on the gaps in the literature, and describe areas for future research.

CORE FEATURES

Virtual teams differ from co-located teams in two main ways: team members are geographically dispersed and they usually rely on the use of technology-mediated communication. Below we explore dispersion and communication technology in detail to determine their implications for thinking and theorizing about virtual teamworking.

DISPERSION

One of the central aspects of virtual teams is the physical separation of some or all of the team members. In other words, there is more *distance* and less *proximity* between the members of the team than there is in co-located teams. Collocation has frequently been considered the 'gold standard' of work environments (Hinds & Kiesler, 2002a), as it facilitates collaboration by allowing frequent face-to-face communication and informal interaction. In this section, we present some of the research that demonstrates how proximity and distance influences group processes and individuals, as much of the recent research on virtual teams, at least implicitly, draws on these findings.

At the most fundamental level, the proximity of other people has been demonstrated to have a wide range of effects on how people behave and feel (see Kiesler & Cummings, 2002, for a detailed review of proximity and distance research). Milgram (1974), for instance, found that participants were less likely to obey the experimenter and administer shocks to the 'learner' when the experimenter was in a different room and gave orders by phone, than when the experimenter was in the same room standing next to the participant. A substantial body of research has demonstrated a positive relationship between the proximity of others and interpersonal liking (e.g., Festinger, Schachter, & Back, 1950; Maisonneuve, Palmade, & Fourment, 1952), and how that relates to higher levels of communication (Athanasiou & Yoshioka, 1973; Kahn & McGaughey, 1977).

The early studies of proximity effects tended to use quite fixed, physical approaches to proximity. An important development for proximity research in organizational contexts was Monge and Kirste's (1980) proposition that proximity should be conceptualized as the 'opportunity to communicate'

(p. 110) with other people. This approach takes account of the fact that travel time is a more reliable estimate of proximity than linear distance (Thomsen, 1969), and that distance between people does not always remain the same over time. In fact, proximity is typically a dynamic phenomenon, particularly in organizations where people frequently move location.

Of particular interest to virtual teamworking is that proximity, or co-location, also facilitates collaboration. Research on extreme co-location (where the team members are in the same room for the duration of the team's life) illustrates several advantages to proximity (Olson & Olson, 2000). Perhaps most importantly, team members were able to refer to each other and objects *in space*. A quick glance allowed team members to observe someone's reaction to a new point being made. Similarly, an idea could be written on a flip chart, and could be referred to by making a gesture towards it. Extreme collocation allowed the teams to work as a whole team or in subgroups as was needed, and moving between subgroup and whole team meetings could be done by overhearing what was being discussed by the other team members. The team members had a keen awareness of each other and progress made on the task. Performance measures that demonstrate how co-location enabled the teams were obtained from six of the teams studied. The co-located teams did their work in less than a third of the time compared to the company baseline, and they did more than twice the amount of work that comparable yet less co-located teams did in the same time.

Proximity also makes collaboration *more likely* to happen. Kraut, Egido, and Galegher (1990), for example, found that scientists were unlikely to collaborate on a technical report unless they were very close to each other, regardless of how closely aligned their research interests were. Kraut and colleagues (Kraut, Fussell, Brennan, & Siegel, 2002) suggest that proximity enables collaboration because of three factors: it is easier to *initiate communication*, it is easier to *conduct a conversation*, and it is easier to *maintain awareness* of what the other team members are doing. Communication is more likely to be initiated when team members are in the same place, as there is a higher probability of chance encounters (e.g., by the water cooler or in the corridor), and encounters are more likely to move on from an encounter to a conversation. Once the conversation has started, it is easier to conduct and maintain as the team members have access to a wide range of cues to correctly time and interpret contributions, and misunderstandings can more easily be repaired. Finally, physical copresence facilitates the maintenance of awareness of how the project is developing, its history and current status, and of the special knowledge other team members have.

Distances greater than the few meters typically considered in the research mentioned above have been demonstrated to severely curtail the frequency of communication between people. Allen (1977) found that as distance between colleagues increases, work-related communication drops sharply, and reaches

an asymptote at around 50 m. This finding has been replicated a number of times (Cummings, 2001; Kraut, Egido, & Galegher, 1990), and is seen by some as being 'accepted as an axiom in social theory' (van den Bulte & Moenaert, 1998, p. 3). A recent replication of this research by Sosa, Eppinger, Pich, McKendrick, and Stout (2002) extended the basic finding and demonstrated that communication frequency was moderated by the communication medium used, so that email usage increased as distance increased. However, because of the high correlation between distance and work-time overlap, it is difficult to conclude if email was used more because of distance *per se*, or because it is easier to use email to communicate with someone who does not share the same working hours.

Much previous research has tended to compare virtual teams with co-located teams in a dichotomous manner. However, in reality, most dispersed teams are not completely dispersed (O'Leary & Cummings, 2002), as it is very common to have more than one team member at the same location. Similarly, many co-located teams are not 100% co-located. Many have one or more members far enough apart to be susceptible to the effects of dispersion. What is more, the geographical distances between the sites can also vary dramatically. How dispersed a virtual team is depends on the way it is configured (i.e., how many members are at how many different sites), and on the distance(s) between the different sites in the team. The variations in configuration and distance are likely to influence how the different research findings for virtual teams apply.

O'Leary and Cummings (2002) present a number of measures of team dispersion. Three measures cover virtual team configuration differences. The *number of sites* is an obvious measure of dispersion. The more sites represented in the team, the more dispersed it is. The number of team members at each site will determine how *isolated* each team member is. For example, the members of a team with 6 sites and 12 members with the configuration 2-2-2-2-2-2 may experience very different levels of isolation from a team with as many members and sites, but with a 1-1-2-2-3-3 configuration. The more members there are of the team at the same site, the more opportunities they have to engage in face-to-face interactions with other team members. An *imbalance index* is an expression of how the number of team members is balanced across sites. In the examples just mentioned, the first team is perfectly balanced, whereas the second team is more imbalanced. In imbalanced teams, team members at sites with a large proportion of the total membership may have more influence on team decisions and access to more resources.

These configuration measures do not capture the differences in spatial distances between different dispersed teams, however. Thus, a *separation index* measures actual geographical distances between all the members of a team, and an *overlap index* is an expression of the extent to which the time zones represented in the team overlap with each other. Teams with greater

levels of geographical separation between the members are clearly going to find it more difficult to meet face-to-face. Furthermore, synchronous meetings such as conference calls are more difficult to schedule when working days only overlap to a limited extent. When there is little overlap, some parties need to attend these meetings at inconvenient times, such as before or after their normal workday. Given these potential variations, the applicability of research findings using a simple 'co-located' versus 'virtual' dichotomy may be limited.

In summary, a long tradition of research has shown how physical distance and dispersion is related to weaker relational ties, and a lower likelihood of relational ties developing. Distance and dispersion also makes collaborative work harder, makes it less likely to happen, and has been found to reduce the likelihood of communication taking place. The pattern of these problems may vary in different parts of the team, dependent on its particular configuration. In an attempt to overcome the barrier of dispersion, virtual teams usually make use of communications technologies, to which we turn next.

TECHNOLOGY-MEDIATED COMMUNICATION

To understand the impact of technology-mediated communication on virtual working, we can draw on a range of theories and concepts. These theories have generally fallen into two themes: (1) those that emphasise the reduced transmission capability (or richness) of the technology and the filtering out of social cues (termed 'cues-filtered out' approaches by Culnan & Markus, 1987, and (2) those that emphasise adaptation and the impact of the cues left in the technology. These two themes will be outlined below.

MEDIA RICHNESS AND 'CUES-FILTERED-OUT'

Here we explore two key theoretical approaches that make predictions about the impact of communications technologies based on their capacity to transmit rich information containing visual and social cues: Media Richness Theory (Daft & Lengel, 1986) and Lack of Social Context Cues hypothesis (Sproull & Kiesler, 1986). Media Richness Theory proposes that communication channels possess objective characteristics that determine their ability to carry rich information, and thus their suitability for certain activities. Rich information (e.g., consisting of social, non-verbal, and feedback cues) is considered better at reducing ambiguity and uncertainty and facilitating shared meaning than less rich information (Daft, Lengel, & Trevino, 1987). People are predicted to prefer richer media such as face-to-face or videoconferencing when they are conducting uncertain and non-routine tasks, but for more routine and predictable tasks less rich media

are predicted to be more efficient. Face-to-face interaction is considered the richest media due to the number of different cues available and the possibility of immediate feedback. Cues such as head nods and verbalizations (such as 'Uh huh') are possible, which indicate one's understanding (Kraut, Lewis, & Swezey, 1982). Videoconferencing is also considered a rich form of communication due to the visual and auditory cues available, which can help interactants understand each other (Veinott, Olson, Olson, & Fu, 1999). However, the poor quality and lack of synchronization between sound and vision in some such technologies reduces their richness (O'Connaill, Whittaker, & Wilbur, 1993), and the cost of videoconferencing can also be prohibitive (Hinds & Weisband, 2003). Whilst the telephone is not considered as rich as face-to-face communication, it does allow transmission of verbal cues to indicate one's understanding and reactions. Thus, the telephone is considered richer than purely text-based media such as email in which visual and auditory cues are missing and feedback is often delayed (particularly when used asynchronously). Text-based systems are also slower and less efficient than face-to-face interactions due to time taken to type and read (Siegel, Dubrovsky, Kiesler, & McGuire, 1986).

Continuing this line of thinking, Sproull and Kiesler's (1986) Lack of Social Context Cues hypothesis proposes a mechanism for the impact of less rich media. It is argued that the lack of social cues increases anonymity which results in a state of deindividuation. Such deindividuation is characterized by less attention to the self and others, so that communication partners are less concerned about how they will be evaluated, experience less embarrassment or fear of retribution, and tend to be more impersonal and task-focused. This is argued to result in uninhibited, antinormative behaviour such as reduced politeness, intolerance, greater conflict, and hostile behaviour (often referred to as 'flaming'). Thus, it is proposed that the development of attraction and interpersonal relations is impeded via communications technologies (Kiesler, Siegel, & McGuire, 1984; Siegel et al., 1986), although positive impacts are also predicted, such as status equalization and more equal participation as a result of reduced inhibitions (Siegel et al., 1986; Sproull & Kiesler, 1986).

The approaches described above assume that changes in transmission capacity alone will result in predictable changes in the nature and interpretation of interpersonal communication, and that reduced social information in virtual settings will have a negative impact on group processes and outcomes. Empirical support for this is inconsistent, however. Although Media Richness Theory has been supported for media such as face-to-face, telephone, and letters, findings for modern communications technologies are less consistent (e.g., Markus, 1994; Rice & Shook, 1990). Similarly, some early, albeit mostly lab-based, research supports the propositions of the cues-filtered-out approach (e.g., Siegel et al., 1986; Sproull & Kiesler, 1986) and indicates that in computer mediated groups people participate

more equally than in face-to-face groups (e.g., Herschel, Cooper, Smith, & Arrington, 1994; McGuire, Kiesler, & Siegel, 1987). However, other studies have not supported the hypothesis of less personal, task-oriented communication via technology (e.g., Hollingshead, McGrath, & O'Connor, 1993; Walther & Burgoon, 1992). There is also some evidence to suggest that status differences may persist when communicating via audioconferencing (France, Anderson, & Gardner, 2001) and text-based systems (Herring, 1993; Saunders, Robey, & Vavarek, 1994; Weisband, Schneider, & Conolly, 1995) as such differences may be known or inferred within the group. Nevertheless, despite inconsistent findings, the intuitive set of predictions from the media richness and cues-filtered-out perspectives remain prominent in the literature.

Adaptation and 'Cues-left-in'

Given the inconsistent findings mentioned above, the media richness/cues-filtered-out view has been accused of being too technologically deterministic as it does not allow for the possibilities of adaptation or the impact of the cues remaining within communications technologies. There are several approaches that challenge this deterministic viewpoint including: technology adaptation approaches (e.g., DeSanctis & Poole, 1994); Channel Expansion Theory (e.g., Carlson & Zmud, 1999); Social Information Processing theory (SIP) (Walther, 1992); Social Identity model of De-individuation Effects (SIDE) (Lea & Spears, 1992; Spears & Lea, 1994); and the hyperpersonal hypothesis (Walther, 1996).

Technology adaptation theories and associated research have highlighted that users adapt to technology and also adapt the technology to their needs (e.g., DeSanctis & Poole, 1994; Tyre & Orlikowski, 1994). Such studies recognize the active role of humans in adapting to and shaping their environment, sometimes using technology in unanticipated ways. Further social and adaptive influences have been identified in Channel Expansion Theory (Carlson & Zmud, 1999), which proposes that media richness perceptions can be enhanced through relevant experience with the communications channel, the messaging topic, the organizational context, and communication partners. Some support was found for this theory (see Carlson & Zmud, 1999). Longitudinally, email experience was found to become less important over time (perhaps indicating some adaptation to it) as other experiences started to play an increasing role in influencing richness perceptions.

SIP (Walther, 1992), proposes that social cues are in fact available via technology but take longer to take effect. Such cues are available in the content and language of the message, the timing of communication (e.g., whether a response is delayed or sent in work time or not, Walther & Tidwell, 1995), and in the typography and style of the message (Walther & D'Addario, 2001). Thus, it is predicted that relations via technology-

mediated communication will adapt and be equivalent to face-to-face if given enough time. Moreover, SIP proposes that if there are expectations of future interaction, then communications via technology will be personal and friendly (Walther, 1992, 1994). Only short-term groups are expected to have a 'norm' for impersonal, task-focussed interaction. Walther (2002) therefore criticizes the unrealistic findings of earlier experiments which concluded computer-mediated communication is not social, as they did not allow enough time (commonly as little as 20 minutes) to uncover such interaction. The groups were typically *ad hoc*, having no expectation of future interaction. Nevertheless, whilst some support has been found for the SIP hypotheses (see meta-analysis by Walther, Anderson, & Park, 1994), there have also been some inconsistent findings. For example, reduced attraction has not always been observed in short-term electronic groups (Walther & Burgoon, 1992) and increased attraction compared to face-to-face has been found (e.g., Warkentin, Sayeed, & Hightower, 1997).

One explanation for the immediate, strong affiliation found in some visually anonymous computer-mediated groups is offered by SIDE (Lea & Spears, 1992; Spears & Lea, 1994). SIDE proposes that due to the lack of personal and individuating cues, attention is shifted away from the perception of interpersonal differences, and instead a common group identity will be inferred from the remaining non-visual cues. Attraction to the group can therefore be immediately enhanced and conformity to group norms encouraged. Several studies appear to support the SIDE hypotheses (e.g., Lea & Spears, 1991; Lea, Spears, & de Groot, 2001) although, again, these were experimental studies conducted on student groups. SIDE also predicts that if individual identities are salient prior to the technology-mediated encounter, anonymity will not enhance attraction. Indeed, Spears and Postmes (1998) observed that for groups defined by interpersonal bonds (e.g., friends) or differentiated roles (e.g., some work groups) rather than a common attribute, attraction and social influence was enhanced when visually identifiable as anonymity disrupted the perception of these more individuated group-defining cues.

Impressions and interpersonal relationships via communications technology can also be more extreme and intense than face-to-face relations. The hyperpersonal perspective (Walther, 1996) proposes that such impressions are based on limited information (that is either deliberately or inadvertently revealed in technology-mediated communication) and group identity cues, which then become overattributed in the absence of contraindicating evidence. Thus, impressions of partners may be exaggerated either positively or negatively (see Walther, 1997).

In contrast to the media richness and cues-filtered-out approaches, the adaptation and cues-left-in theories suggest that the effects of technology on group processes and outcomes are not straightforward or deterministic. Outcomes also depend on adaptation, the cues remaining in the media, one's

experience with the technology, communication partners, subject, and broader context. Social identity and influence also have an impact and can play a part in making relations more extreme by exaggerating the limited cues available. However, it must be noted that much of the research in this area has concentrated on text-based communications technologies and less attention has been given to the relatively richer technologies of telephone and videoconferencing (Baltes, Dickinson, Sherman, Bauer, & LaGanke, 2002). In conclusion, technology may ultimately aid yet also complicate and impoverish collaboration across distance, which may mean that some tasks in some teams and contexts are more difficult.

NATURE AND CONTEXT OF THE TEAM

So far, we have examined two key aspects of virtual working, namely, dispersion and technology mediated communication. However, we cannot just rely on these two basic distinctions when investigating virtual teams as the specific nature of the team and its context also need to be taken into account. Virtual teams found in organizational settings differ on a range of attributes, which has a profound influence on whether, in what way, and to what extent the findings from controlled research on virtual teams might be relevant. In this section, a few of the most important ways in which virtual teams differ are discussed. These are: the team's diversity; task; and the broader organizational context in which the team is embedded.

Team Diversity

As some of the important motivations for forming virtual teams are to include expertise from different locations and draw in representatives from different functions, organizations, or countries, the composition of virtual teams is likely to be more diverse than most typical co-located teams. Nevertheless, virtual teams are likely to differ greatly in the extent to which they comprise diverse members (more and less heterogeneous), and the types of diversity that are represented in the team (e.g., cultural, national, functional, organizational, and language). So far, beyond anecdotal evidence of the difficulties of collaborating across cultural and linguistic boundaries, very little research has explicitly investigated the effects of team member diversity in virtual teams. By considering the processes of diversity and the key features of virtual teams, it is possible to draw some preliminary conclusions about how we would expect diversity to work in virtual teams.

Most diversity research is founded on one of three theoretical approaches (Williams & O'Reilly, 1998). First, social categorization theory (Tajfel, 1981) holds that people classify themselves and others into social categories using various characteristics (e.g., gender, race, and profession), and allows them to

define themselves in terms of a social identity. In some cases, this leads to ingroup/outgroup distinctions, where members of the outgroup are seen as less attractive. Second, the similarity/attraction approach (Berscheid & Walster, 1978) proposes that similarity to others on attributes such as attitudes, values, or demographic variables increases interpersonal attraction and liking. Finally, the information/decision-making approach suggests that a more heterogeneous group will have access to a wider range of information, knowledge, and resources, which in turn will make it better able to innovate and solve problems (Gruenfeld, Mannix, Williams, & Neale, 1996). The first two approaches above predict that more group member heterogeneity will adversely affect group processes and outcomes, whereas the third proposes positive effects of diversity.

For virtual teams, it is likely that all three approaches to diversity are affected by team member dispersion and reliance on communication technology. Social categorizations and perceptions of similarity in virtual teams can involve a category unique to virtual teams, namely location. Virtual team members may identify with the location they are based at, or with the group of people at their location. Not only does this additional dimension increase the number of possible subgroups that can be formed, but the fact that members are less likely to interact with members from different locations may exacerbate the strength of the subgroups. Furthermore, different locations also provide virtual teams with another source of knowledge and information (from local networks, for example) that co-located diverse teams would not have (Cummings, 2002). Integrating and leveraging the diverse knowledge that a virtual team contains towards more innovative problem solving is probably more challenging when the team communicates primarily via technology. For example, it is more difficult to establish who in the team knows what, and at which stage certain pieces of knowledge will be useful to the team's goals (see later section on knowledge sharing).

Perhaps the most dramatic impact of diversity in virtual teams is likely to come from the combined effect of different types of diversity. The members of a virtual team that reside in the same location are likely to share more attributes with each other than with members at other locations. This clustering of shared attributes at each location (e.g., nationality, language, and function) means that a compositional *faultline* (Lau & Murnighan, 1998) will align itself between the different locations. Following Lau and Murnighan's (1998) argument, we would expect that the more differences between the sites, the stronger the faultline will be. Strong faultlines are in turn likely to create more potential for performance losses due to increased subgroup formation and conflict.

Thus, it appears that team diversity is likely to affect the processes and outcomes of virtual teamworking. Whilst there may be advantages to having diverse knowledge, differences between people can have a negative impact on team relationships, knowledge integration, and performance.

The Team's Task

The ease or difficulty of virtual working is likely to be in part dependent on the type of work being conducted. The work can vary considerably in terms of how closely the team members need to work together, and the extent of cognitive versus behavioural performance required.

Interdependence (i.e., the extent to which the team members rely on and have to work with one other to complete their tasks) is an important task dimension for virtual working because it imposes different interaction requirements for the teams, and has more wide implications for the team's structure, processes, and outcomes. Indeed, interdependence has been proposed to moderate the relationship between team performance and psychosocial variables. For example, conflict may be more harmful for highly interdependent teams (Hinds & Bailey, 2000).

The least interdependent work arrangement is *pooled or additive* interdependence, where tasks are performed separately by all the team members, and combined to make the complete product. In *sequential* interdependence, work flows from one team member to another in one direction. In the third type of interdependence, *reciprocal*, work flows back and forth between different team members, one at a time. Finally, in the most interdependent arrangement, *intensive*, the team members must continually and simultaneously collaborate to diagnose and solve problems (Thompson, 1967; van den Ven, Delbeq, & Koening, 1976). Furthermore, interdependencies may vary across different parts of the team, and change over time.

Tasks also vary on aspects other than interdependence, such as their cognitive, behavioural, or emotional requirements. For instance, with reference to McGrath's (1984) typology, *choosing tasks*, include cognitive intellective activities (where problems with a demonstrably correct answer have to be solved) and decision-making tasks that require consensus to arrive at an answer. *Negotiating tasks*, however, include resolving conflicting views, conflicts of interest, and bargaining. Choosing and negotiating tasks are therefore likely to involve information sharing, persuasion, consensus, and conveying emotions (Baltes et al., 2002; Straus & McGrath, 1994).

From the cues-filtered-out and media richness perspective, if a task requires a great deal of information exchange, coordinated effort, emotion, persuasion or consensus, then richer, synchronous technologies are considered to be the superior choice. On the other hand, independent tasks are suited to asynchronous and less rich technologies such as email (Riopelle et al., 2003).

Some evidence supports these propositions about task type, interdependence and technology suitability. Across six organizational case studies, Riopelle et al. (2003) found that the team characterized by low complexity, independent tasks, mostly used asynchronous technologies and had face-to-face meetings just once a year. The other five teams were characterized by

complex, interdependent tasks, and all relied on one or more synchronous communication technologies, as well as face-to-face meetings. Similarly, the low interdependence task of 'brainstorming', is often found to be superior via less rich, text-based media because members can contribute anonymously and work in parallel, thereby reducing production blocking (McGrath & Hollingshead, 1994). Furthermore, a meta-analysis on experimental decision-making studies revealed that those groups conducting problem solving tasks and conflict resolution tasks performed more poorly under computer-mediated than face-to-face conditions (Baltes et al., 2002). Conversely, Shunn, Crowley, and Okada (2002) found a positive effect of virtual collaboration despite high task complexity within a cognitive science community. Collaboration on academic writing was more successful when virtual than co-located (although the virtual collaborations were dependent on frequent face-to-face contact). One reason for the positive result could be that much writing can be done independently, and therefore may benefit from fewer interruptions from proximate colleagues.

Considering such evidence, Hinds and Bailey (2000) argue that due to the potential problems of trying to work interdependently via technology, team design should be structured for independent rather than interdependent work. Where interdependence cannot be avoided, they advocate face-to-face meetings. Similarly, Eppinger (2001) recommends that for complex, tightly coupled tasks, such as in product development teams, the sequence of tasks should be rearranged to reduce the amount of feedback required, highly interdependent tasks should be conducted at the same time and same place, and information exchange should be reduced. Alternatively, more complete, multiskilled individual jobs could be designed that reduce the need for input from others (Sparrow & Daniels, 1999).

In contrast to this view, and in line with the adaptation approaches described earlier, some evidence suggests that communications technology can be used in a more interactive manner. For instance, in a Fortune 500 organisation, Finholt and Sproull (1990) found that email groups separated by greater distance displayed much higher interaction rates than more local groups, possibly because distribution lists were their only way to interact extensively. In addition, Majchrzak, Rice, King, Malhotra, and Ba (2000) found in their study of rocket engine design teams that some ambiguous tasks (e.g., clarifying and changing objectives, learning about unfamiliar concepts, and understanding design concerns) were conducted via collaborative technology. This was enabled because of the common language and artefacts developed in face-to-face meetings.

Thus, although simple, independent tasks may be suited to relatively lean communications technologies, virtual teams are likely to have more difficulty conducting more complex and interdependent tasks via technology. Reducing interdependence and conducting the remaining interdependent tasks face-to-face may be one approach to dealing with this problem.

However, teams may be able to adapt to using technology for some complex and ambiguous tasks if they have a high level of common understanding.

The Broader Organizational Context

The broader context within which the virtual team is embedded is likely to affect the processes and effectiveness of the team. In this section we consider team governance structures, the resources the team can draw on, the demands and influences of each team members' local context, and organizational philosophy.

Team governance structure

Traditionally, teams have been managed by monitoring ongoing team performance, which implies a level of copresence to observe behaviours. However, it can be argued that dispersion and reliance on communication technology makes it more challenging to monitor and control team members, as physical observation of behaviour becomes more difficult (Wiesenfeld, Raghuram, & Garud, 1999). This necessitates an emphasis on high commitment relationships in which teams are more autonomous and self-managing with clear and engaging goals to help them monitor and regulate their own actions (Bell & Kozlowski, 2002; Sparrow & Daniels, 1999). The leader then only needs to monitor and reward outcomes, not behaviours. By rewarding team outcomes, perceived interdependence can be increased, thus enhancing cooperation (Suchan & Hayzak, 2001).

There is some evidence that managing by autonomy can help virtual teams work well. Vickery, Clark, and Carlson (1999) tested a model of virtual team performance in a military procurement setting and found that autonomy (rather than control from the parent organization) led to better performance, partially mediated by commitment to the virtual team. Robey, Khoo, and Powers (2000) also describe an organizational case study in which team members were given greater responsibility, and were able to design their own work practices which met their own needs.

An alternative governance approach is to try to closely monitor team members' behaviours. Even though physical observation of virtual team members is more difficult, some research suggests that communication technologies may enable control and monitoring (Depickere, 1999; Townsend, DeMarie, & Hendrickson, 1998). For example, when examining three global virtual teams involved in a student exercise, Crisp (2002) found that in the absence of physical observation, team members attempted to gather and interpret information about the behaviours and outputs of their virtual teammates through the cues available within the media. However, as Crisp notes, inferences made from observing electronic artefacts may not always

closely relate to behaviours. For instance, if a report is not received, it does not necessarily mean that the other person has not written it, or attempted to send it. When using this governance approach, team leaders may decide to clearly specify what tasks each team member should do, provide detailed project plans, deadlines, and formal handover points. Hinds and Bailey (2000) suggest that such formal coordination mechanisms are preferable to informal ones for interdependent virtual teams.

Overall, it may be the case that interdependent virtual teams require a mixture of the two governance approaches. Due to the lack of shared knowledge and difficulty of implicit coordination via technology, such teams may not be able to use autonomy effectively without a good degree of structure in place. However, such coordination mechanisms are likely to be more effective if team members participate in setting them.

Resource availability

The challenging nature of virtual teams means that they require a number of different resources from their host organization(s) to operate effectively. Organizations are likely to differ in the extent to which they provide these resources to their virtual teams, and within teams, some members may have access to more resources than others. Here we consider two prominent examples of resources virtual teams require, namely access to communication technologies and process assistance.

When virtual teams involve members from different organizations, or involve functions with differing budgets, some team members may have better access to communications technologies than others. Not all members may have access to the same level of technology at the same time, which can have an impact on team effectiveness. For instance, Cramton (2001) found that some parts of the student project teams she studied communicated at different rates to others due to differential access to technology and speed of data transmission. These uneven feedback cycles across parts of the group were quite destructive, leading to feelings of isolation as the team members were out of synchrony.

Organizations may also vary in the extent to which they provide process assistance or facilitators for virtual teams. Gorton and Motwani (1996) suggest that an additional person may be required to take responsibility for facilitating communication and resolving issues in dispersed teams where members share few or no working hours. Moreover, when using complex technology, it has been argued that a facilitator may be necessary. A meta-analysis of group decision support system meetings found that the presence of a facilitator (compared to meetings without a facilitator) increased decision quality and improved team member satisfaction with the work process (Dennis & Wixom, 2002). There was no benefit of having a facilitator for simpler tasks such as brainstorming.

Local context and organizational philosophy

Members of virtual teams are embedded in the context of the local site at which they work, and in many cases also engaged in other teams or assignments than the virtual team being studied. Rennecker (2002) found that the contributions of members of the virtual team she studied was affected by the local rhythms, relationships, rules, politics, and resources of each local site. Furthermore, some teams at one extreme may have members who are 100% allocated to the team. Others at the opposite extreme may have members who are all only minimally allocated to the team (e.g., only 5% of their time). The proportion of part-time or full-time members within a team is another dimension of diversity that may cause difficulty about priorities and levels of contribution. Additionally, the way in which local site work has to be juggled with work on the virtual team is likely to affect how team members contribute to and behave in the team (Klein & Kleinhanns, 2003).

Moreover, organizational philosophy or culture is likely to have a profound impact on virtual teams. For instance, a pre-existing 'high trust' culture may facilitate a positive, default sense of trust within a new virtual team (see Suchan & Hayzak, 2001). Conversely, a philosophy that emphasizes technology rather than people is likely to have a negative impact on virtual team effectiveness. Structuring virtual teams around technical considerations rather than the social system and interpersonal relationships within the team will have a negative impact. As proposed by sociotechnical theory (e.g., Cherns, 1976), work systems require the optimization of both the technical and social systems in order to be effective. When comparing virtual with co-located software development teams, Cramton and Webber (2001) found that virtual teams had less optimization of social and technical systems, which was related to less effective performance. This technology-oriented philosophy will also have implications for the skills and competencies organizations select and train virtual team members in. Although it might be assumed that technical skills are most important, people and organizational skills (such as communication, teamworking, self-management, and adaptability) are particularly important in the virtual team context (Kirkman, Rosen, Gibson, Tesluk, & McPherson, 2002).

From the above discussion, we can see that the team's nature and context interacts with the core features of virtual teams (dispersion and technology) to impact on processes and outcomes. However, variations in team diversity, the type of task, and organizational context make it difficult to apply the findings from relatively controlled and unidimensional studies to applied settings. It is important to bear this in mind whilst considering the research on virtual collaborative processes, which we turn to next.

KEY COLLABORATIVE PROCESSES

Of great interest and concern in the virtual working literature is how team members relate to each other (i.e., develop cohesion, trust, avoid conflict, and make attributions about each other's behaviour) and how they coordinate their work, given the key features, nature and context of virtual teams described above. With much virtual team-working requiring the transfer of expertise and information across distance and technology, we focus here on the literature relating to the sharing and use of knowledge (i.e., developing mutual knowledge and contextual understanding, accessing dispersed knowledge, and decision-making) when considering how they do their work. Thus, we review the literature on relationships and the sharing and use of knowledge next.

Team Relationships

Cohesion

The development of group cohesion is likely to be affected by virtuality. Group cohesiveness has been conceptualized as the total of all the forces attracting members to the group (Cartwright, 1968). Early research focused on the extent to which members of a group like each other as an indicator of cohesion (Lott & Lott, 1961). However, more recent authors, drawing on theories such as Social Categorization Theory, have preferred to think of cohesiveness as the extent to which team members are attracted to the *idea* of the group (Hogg, 1992). This latter view is of particular relevance to virtual teams, as conceptualizing cohesion in terms of interpersonal liking and friendship has traditionally assumed quite a high level of face-to-face interaction.

With regard to the liking and friendship aspect of cohesiveness, virtual teams are often less cohesive and like each other less than face-to-face groups (Hinds, 2000; McGrath & Hollingshead, 1994). As mentioned in the section on dispersion earlier, geographical separation of people makes them much less likely to meet face-to-face, and also less likely to interact using other media (Allen, 1977; Sosa et al., 2002). To the extent that this lower level of interaction frequency inhibits friendship formation, this is likely to have a negative impact on cohesiveness in virtual teams. Although much evidence (particularly from the cues-filtered-out perspective) suggests a negative impact of virtuality on cohesion, the literature is not conclusive. For instance, from the Social Information Processing (Walther, 1992) perspective, equivalent cohesion will develop over time, and from the hyperpersonal (Walther, 1996) and SIDE perspectives (Spears & Lea, 1992), cohesion could be much stronger than in face-to-face interaction (see earlier section on technology-mediated communication).

In terms of the extent to which members are attracted to the idea of the group, social identity may be seen as a mechanism here. From this perspective, individuals categorize others into the 'in-group' (similar to oneself) and 'out-group' (all others), and view those in the in-group more positively than those in the out-group (Hogg & Abrams, 1988). Perceptions of 'otherness' have been associated with lower cohesion, decreased satisfaction with the group, decreased communication and cooperation, and higher conflict (see Williams & O'Reilly, 1998, for a review). In the context of virtual teams, Mortensen and Hinds (2001) found that a lack of shared team identity was related to higher conflict in virtual teams, but found no such association in co-located teams. While causal relationships are not possible to establish in the Mortensen and Hinds sample, their analysis favours the interpretation that conflict disrupts the development or maintenance of shared identity, rather than a lack of identity causing conflict. Promoting a common group identity was also found to be beneficial for long-term, virtual, student work teams, where higher levels of attraction, intimacy, and work effort were observed in comparison to groups where individual identity was primed (Walther, 1997).

Some authors have proposed that virtual team development follows similar phases to that of co-located teams (e.g., Romm & Pliskin, 1998), whereas others have suggested that dispersed groups do not necessarily follow the same development and activity patterns as face-to-face groups (e.g., Orlikowski & Yates, 1994; Poole & Holmes, 1995). Gluesing et al. (2003) illustrate a particular model for virtual team development, which highlights the need to integrate the complexity of different contexts and cultures that occur within virtual teams. Based on an ethnographic study of three virtual teams, a three-stage model of virtual team development was proposed involving a focus on initial conditions, the processes of early and ongoing development, and maturation. Although pathways through this model were varied, Gluesing et al. (2003) argue that maturation was more likely to be achieved by teams that consistently engaged in integrative processes (e.g., communicating frequently, face-to-face meetings, checking understanding, and messaging in different languages).

Team leaders may be able to facilitate group cohesion by implementing routines like weekly audioconferences or quarterly face-to-face meetings and frequent communication. In one study (Cummings, in press), the effect of leader's communication frequency on team performance in a globally dispersed organization was stronger the more dispersed the teams were, suggesting that the team leader has a critical role to play in creating bridges between members at different locations. In terms of supportive leadership behaviours in this context, an experimental study of virtual student teams (Kayworth & Leidner, 2001) found that those leaders who were rated as most effective tended to demonstrate mentoring skills, understanding for others, and empathy.

In sum, cohesion is an important factor in virtual teams, and may be based on or influenced by the team identity and cues perceived via communication technology. Thus, team relationships may be exaggerated and prone to stereotyping, but having a common identity may facilitate positive effects. Developing a cohesive virtual team involves integration across contexts which may be aided by frequent communication, face-to-face meetings, and leader behaviours.

Trust

Trust has been seen as an important ingredient for group effectiveness, as low trust is often associated with excessive monitoring, checking, and duplication of effort (Ashforth & Lee, 1990). Moreover, without trust, people may be less willing to openly share information about problems, thus reducing the group's knowledge sharing and development (Zucker, Darby, Brewer, & Peng, 1996). To trust someone is to place oneself in a position of risk, where one relies on the other person to honour their commitments (Mayer, Davis, & Schoorman, 1995; Rousseau, Sitkin, Burt, & Camerer, 1998). A frequently used distinction is between cognitive and affective trust, where cognitive trust is based on expectations that others will be reliable and dependable, and affective trust is based on relational ties and reciprocation of care and concern (McAllister, 1995; Rousseau et al., 1998).

Trust is frequently described as one of the most important issues for virtual teams (Handy, 1995; Poole, 1999). Unfortunately, little research has directly addressed the link between trust and virtual team performance. Jarvenpaa, Knoll, and Leidner's (1998) study of globally dispersed student project teams is one exception to this. They found that teams with higher trust appeared to have better group processes (i.e., less conflict and better group climate), and were more effective in terms of moving their task forward. A cross-sectional study by Fleck, Axtell, Clegg, and Totterdell (2002) investigated the relationship between trust and performance in virtual engineering teams. They found that trust was related to perceptions of team performance, and also found a strong positive association between levels of trust and team members' job satisfaction, indicating that trust is related to non-task outcomes too.

A prevailing assumption about the development of trust in dispersed teams is that trust will be lower than in co-located teams, but the research is inconclusive (Wilson, Straus, & McEvily, 2002). For example, Handy (1995) argues that 'trust needs touch.' However, Zheng, Bos, Olson, and Olson (2001) found that trust can develop without touch, as their participants made themselves vulnerable to opportunistic behaviours in an electronic prisoner's dilemma game. The 'lack of touch' afforded by communications

technology would be expected to make trust less likely to develop. Yet, as the Social Information Processing theory (Walther, 1992) discussed earlier suggests, relationships may develop to equivalent levels over time in electronic and face-to-face groups. In support of this, Wilson et al. (2002) found that trust was lower in electronic groups than in face-to-face groups early on in the groups' lifespan, but developed over time to similar levels. This study suggests that it may be more useful to focus on the *rate* at which trust develops in virtual teams than on whether trust is *higher* in face-to-face groups.

Interestingly, McKnight, Cummings, & Chervany (1998) argue that trust is often strong from the very beginning of a team's work (termed 'initial trust'), even when there is no interaction history or personal knowledge shared between the collaborators. They argue that initial trust is a function of individuals' general disposition to trust, and shared institutional factors such as structural assurances. Essentially, people summon up stereotypical representations of their prospective collaborators, and attribute trustworthiness to them based on the contents of these stereotypes. Similarly, the notion of 'swift trust' denotes the fast development of trust based on stereotyping within teams that have to form and perform at short notice (Meyerson, Weick & Kramer, 1996). However, initial and swift trust are assumption-based (rather than evidence-based), and only occur in the absence of contradicting evidence. Thus, trust is likely to unravel as unexpected and negative information about the trustee becomes evident. Based on this reasoning, Crisp and Jarvenpaa (2000) hypothesised that trust will decrease over time in virtual teams, and in a study of a number of globally dispersed student project teams, this is indeed what they found. Furthermore, in a series of descriptive case studies, Jarvenpaa and Leidner (1999) found that initial trust in virtual student project teams was to a large extent determined by how much social information the team members divulged about themselves early on in the projects. In the teams with high levels of initial trust, the team members spent almost half of their time in the first two weeks exchanging social information. However, Jarvenpaa and Leidner observed that high levels of initial trust and social information were not enough to sustain the trust: further focussed task-based communication was required.

Additionally, different components of trust may be affected more by virtuality than others. For instance, there is evidence to suggest that cognitive based trust is particularly important in virtual engineering teams (Fleck et al., 2002), and can develop to similar levels in co-located and virtual teams (Rocco, Finholt, Hofer, & Herbsleb, 2000). In contrast, affective trust may be lower and harder to develop virtually (Rocco et al., 2000). Cognitive-based trust can, for example, be developed by demonstrating one's reliability and competence by a prompt and competent reply to an email. Affective-based trust is perhaps less likely to develop (particularly in diverse work-based

contexts) as such bonds often develop through a series of contacts and conversations that are often not directly task related.

One of the reasons for stressing the importance of trust in dispersed teams has been the idea that dispersion of coworkers makes it more difficult to control and oversee what they are doing, and one therefore has to manage more by trust than control (Handy, 1995; Jarvenpaa et al., 1998; Lipnack & Stamps, 2001). Trust has therefore been presented as an opposite or substitute for control (Rousseau et al., 1998). Recent research, however, suggests that the relationship between trust and control is more interdependent and nuanced. Certain forms of control may increase trust, as checks and balances on people's actions allow team members to feel reassured and safe. Indeed, Crisp and Jarvenpaa (2000) found that team process control (i.e., team members collective control over each other) was positively related to levels of trust, and also served to sustain trust over time. Similarly, O'Leary, Orlikowski, and Yates (2002), in a historical study of trust and control in the Hudson's Bay Company, also found that trust and control were interdependent coordination processes. These studies suggest that trust and control may be mutually reinforcing rather than opposing managerial approaches in virtual teams (see earlier discussion on team governance).

A small amount of research has investigated predictors of trust. A preliminary qualitative study of over fifty members of a dispersed IT department (Rocco et al., 2000) revealed that key factors that influenced the extent to which members of this department trusted each other were familiarity (with local customs and cultures), a sense of shared identity with virtual coworkers, and a relatively high level of communication, particularly non-work related communication. Crisp and Jarvenpaa (2000) also found some support for the idea that amount of team communication is positively related to levels of trust. The relative importance of different antecedents to trust is likely to differ depending on the development stage of the team. For instance, Jarvenpaa, Knoll, and Leidner (1998) studied globally dispersed student project teams over a period of two months, and found that at the beginning of the project trust within the teams was predicted by cognitive trust factors whereas at the end of the project affective factors were more important.

In summary, although there is not much empirical research on the relationship between trust and performance in virtual teams, it is considered key. Despite the predicted difficulties of developing trust virtually, some evidence suggests that trust does not necessarily need copresence to develop. Trust may occur immediately, but may be more fragile and dissipate in the face of contradicting evidence. Social information at team formation and further task focused communication later may help to develop and maintain trust. Cognitive-based trust may be easier to develop, although affective trust may play an increasing role over time.

Conflict

Although conflict is often mentioned in the dispersed teamworking literature, few have attempted to empirically examine it in its own right (for exceptions, see Hinds & Mortensen, 2002b; Joshi, Labianca, & Caligiuri, 2002; Mortensen & Hinds, 2001). Dispersion of team members is likely to have a number of different implications for conflict in the team. For instance, conflict may be more prevalent, and may not be associated with the same outcomes as in more traditional teams. Increasing distance between team members is expected to make conflict more likely in a number of ways. First, closeness and affinity between team members is inversely related to conflict (Hinds & Mortensen, 2002b). Close relationships are likely to decrease as the distance between team members increases (Festinger et al., 1950; Kiesler & Cummings, 2002), thereby increasing the probability of conflict. Second, the increased compositional diversity and lack of common social identity within many virtual teams is proposed to increase the likelihood of conflict (Mannix, Griffith, & Neale, 2002). Indeed, demographic, functional, and cognitive diversity have been associated with conflict in co-located teams (Williams & O'Reilly, 1998). Third, dispersion of the team means that many team members will work in different contexts, with a number of local constraints and expectations influencing their contributions to the team. Mutual awareness of each other's context is therefore important. However, Cramton (2001) found that student project team members frequently failed to share such contextual information within dispersed colleagues, leading to misunderstandings and conflict (see later section on knowledge sharing). Fourth, dispersion of team members is often (if the dispersion includes east–west configurations) associated with time zone differences, which may lead to frustrations and recriminations as team members have to accommodate their workdays around each other (Armstrong & Cole, 2002). Fifth, reliance on communications technology may also exacerbate the likelihood of conflict in dispersed teams as the cues-filtered-out perspective suggests such communications can be more impersonal and uninhibited (Kiesler et al., 1984; Kiesler & Sproull, 1992).

When considering conflict, distinctions can be made between affective and task dimensions (e.g., Pelled, 1996a, 1996b; Pelled & Adler, 1994). Affective conflict results from interpersonal incompatibilities arising from differences in personality, and is typically characterized by negative feelings like anger, frustration, and distrust. Task conflict arises from differing opinions and viewpoints about the work being done. Whilst affective conflict is often found to detract from performance in traditional teams as a result of the anxiety, hostility, and time and energy consumption associated with emotional disagreements (Jehn, 1997; Pelled, Eisenhardt, & Xin, 1999), task

conflict is consistently found to be beneficial for performance in co-located teams because it can lead groups to consider more alternatives (Jehn, 1997; Pelled et al., 1999), avoid 'groupthink' (Janis, 1972), and arrive at better solutions through stimulating discussions and integrating differing views (Pelled et al., 1999).

Whereas in traditional teams affective conflict is typically seen as negative for team performance and task conflict is generally positive, Hinds and Bailey (in press) argue that this might not be the case in virtual teams. They suggest that *both* affective and task conflict will have negative implications for virtual team performance. The open and intense discussion, as a result of task conflict, will probably be impeded by dispersion of team members and reliance on communication technology. As a consequence, the divided opinions that would have enhanced a traditional team's performance may turn into affective conflict and be detrimental for the performance of a virtual team. Mannix et al. (2002) propose that in order to manage conflict effectively in virtual teams and use task conflict to an advantage, teams need to enact swift trust, develop a shared reality and team culture, gain a belief in the team's capability by knowing who knows what, and develop a psychologically safe environment to learn (and make mistakes) together. Furthermore, Montoya-Weiss, Massey, and Song (2001) found that virtual teams that put in place temporal coordination mechanisms (e.g., deadlines, specification of time spent on tasks, and guidelines for coordinating the pace of work) experienced less conflict.

Taken together, we might expect there to be more conflict in virtual teams than in co-located teams. However, the evidence for this is mixed so far. Both Armstrong and Cole (2002) and Cramton (2001) found that virtual teams were prone to conflict, but neither of these studies compared virtual and co-located teams. In contrast, Hinds and Mortensen (2002b) and Mortensen and Hinds (2001) did not find much evidence that virtual teams had more conflict than co-located ones. This may be due to issues particular to the organizational contexts studied or the simple distinctions made between virtual and co-located teams. Thus, conflict needs to be investigated in other contexts with more detailed examination of the possible moderators before firm conclusions about its impact on virtual teams can be made.

In summary, conflict may be worse in virtual teams due to diversity of contexts and the increased possibility of misunderstandings via technology. Affective and task conflict are likely to both have a negative impact in virtual teams, as the ability to resolve and take advantage of task conflict is likely to be impaired. Having a shared understanding, identity, and history, along with greater tolerance and sensitivity to others and clear expectations and coordination mechanisms are likely to help reduce the incidence of conflict within virtual teams.

Causal attributions

Attributions concern the causal inferences made about another person's behaviour (e.g., Jones & Nisbett, 1972) and a key aspect of this is whether a person's actions are attributed to the characteristics of the person or to situational factors. The fundamental attribution error is the tendency to overestimate the influence of dispositional factors compared to situational influences when judging others' behaviour (Ross, 1977). However, when it comes to one's own behaviour, there is generally greater recognition of situational influences, partly because there is more information available about one's own situation than about another person's (Jones & Nisbett, 1972). Without such situational knowledge, there is a tendency to default to making personal attributions, and so the less that is known about another person, the more likely dispositional attributions will be made (Kelley & Michela, 1980).

In relation to virtual teams, dispositional attributions for failures of communication or missed deadlines are more likely to be made about remote colleagues than co-located teammates, due to having more information about the local situation than the remote situation (see Cramton, 2002b, for a review of attribution in virtual teams). Without situational knowledge, only the few cues observed via communications technology are likely to be used when making attributions about others' behaviour (Cramton, 2001, 2002b). For instance, a study of videoconferencing (Storck & Sproull, 1995) found that impressions of remote partners were based on communication competence rather than task competence because their communication behaviours were the most salient to the observer. Thus, dispersion may exacerbate the tendency for attribution biases based on limited information.

Cramton and colleagues have found attribution biases in virtual teams within experimental settings (Cramton, 2001; Cramton & Orvis, 2002), amongst student work teams (Cramton, 2001; Cramton & Wilson, 2002), and teams of senior bank employees (Cramton & Wilson, 2002). For example, among student project teams, Cramton (2001) found that partners were considered as lazy or rude because they did not reply to a message, when in reality they did not receive it. Moreover, the negative effects of these attributions were found to endure even when the cause of the problem had been identified. A significant relationship was also found between distance and attributions in banking teams (Cramton & Wilson, 2002). The greater the physical distance, the greater the tendency to make dispositional rather than situational attributions regarding broken commitments. This tendency was unaffected by team identity, perhaps because the team had a long history of interacting together and so may have developed individuated perceptions of each other. In another study reported in the same paper, Cramton and Wilson (2002) also found that virtual student project teams were more likely to make dispositional attributions than co-located teams. However, the authors admit

that this could be due to the shared identity of the co-located team (they were from the same university) rather than increased situational knowledge.

An extension of the fundamental attribution bias is the ultimate attribution error (Pettigrew, 1979) where more positive attributions are made about the ingroup, compared to the outgroup. In the context of virtual teams, Lea and Spears (1992) found that people tend to overlook errors made by those with whom they share a social identity. For instance, Thompson and Nadler (2002) illustrate the ultimate attribution error in e-negotiation where the actions of the outgroup were attributed to malevolent motives. However, ingroup status of an e-negotiation opponent has also been found to reverse the ultimate attribution error, improve performance, and reduce the likelihood of an impasse to almost zero (Moore, Kurtzberg, Thompson, & Morris, 1999). Similarly, feuds have been found to develop between different sites resulting in an 'us' and 'them' culture (Armstrong & Cole, 2002). Furthermore, Cramton (2001) noted that bad feeling as a result of attributing blame to certain groups meant that members of subgroups withheld information from each other, which damaged the development of mutual knowledge.

Having knowledge about the communication partner's situational context is likely to help prevent negative personal attributions in virtual settings. For instance, in one experimental study, Cramton and Orvis (2002) found that participants who could not see their partner (and therefore did not observe their lack of situational resources to help them in the task) were more likely to make dispositional attributions (about ability) for their partner's poor performance than those who could see their partner's situation. However, when provided with a situational explanation for the poor performance of their partner, virtual dyads were similar to co-located dyads in their attributions (i.e., less likely to give dispositional attributions). Thus, the fundamental attribution error was only exacerbated in virtual dyads in the absence of knowledge about the partner's situation. Without this knowledge, there was a tendency to assume that their partner's situation was the same as their own.

Giving remote partners the benefit of the doubt (blaming the situation rather than the partner when things go wrong) has been associated with virtual team success (Cramton, 2001). Moreover, when aggrieved parties feel they have been treated with respect and concern, the effects of negative attributions can be ameliorated. Cramton and Wilson (2002) found that simply offering a situational explanation without expressions of concern and regret facilitated situational attributions but still left team members feeling unjustly treated. Thus, repairing relations is likely to take more than just amending the causal attributions made.

In summary, the tendency to make personal causal attributions about a partner when things go wrong can be damaging, and is more likely in virtual teams where there is an absence of information about the partner's situation or context. Thus, having greater contextual understanding, giving people the

benefit of the doubt, and showing concern and regret when things go wrong may help to overcome some of the problems of attribution biases in virtual teams.

Knowledge Sharing and Usage

So far, we have considered how being virtual can affect team relations. In the next section, we explore the impact of virtuality on how teams exchange knowledge and make decisions in order to complete their work.

Mutual knowledge and contextual understanding

Based on the view that a shared understanding is a precondition for collaboration and coordination within groups (Weick & Bougon, 1986), there has been a substantial recent focus on this issue in relation to virtual working. Without a common understanding, communication is more difficult because the receiver is likely to interpret the message using a different knowledge base to that of the sender, and both may falsely assume they understand the message in the same way (Krauss & Fussell, 1990). In addition, a shared understanding of the team's activity enables members to anticipate and predict the behaviour of their colleagues (Hinds & Weisband, 2003). Team members can assume that their actions are consistent with each other, which removes the need for constant checking.

Mutual knowledge is required across a range of dimensions within teams. This includes knowledge of the team's goals, the task (including knowledge of task history, current status and future directions, Kraut et al., 2002), team processes and interactions (e.g., roles and responsibilities and expected flow of information), and the characteristics of team members and the context they are in (Hinds & Weisband, 2003). As found by Hinds (2000) in her experimental study of virtual dyads, the absence of mutual knowledge is likely to lead to different perspectives on a task which becomes difficult to reconcile. Hinds discovered that members of co-located dyads (who were face-to-face and within the same context) had more of a shared mental model of the task, which included greater contextual information, than the mental models of virtual dyads. Sharing contextual information (about such things as differing equipment, standards, competing responsibilities, local pressures, local holidays and customs) may be particularly neglected in virtual teams. Indeed, similar to Cramton's (2001) study, Hinds (2000) found that virtual colleagues rarely either mentioned their own work context or attempted to understand their remote partner's work situation.

The literature suggests that mutual knowledge develops through shared experiences and direct knowledge of each other, interaction and communication, and through shared background or common group membership (Klimoski & Mohammed, 1994; Krauss & Fussel, 1990). However, these

processes may be severely disrupted in virtual teams where communication processes via technology are relatively impoverished, face-to-face communication is rare, and members (or at least some members) do not share the same context or identity. Through communications technology (particularly text-based modalities), there is likely to be less elaboration of information and, consequently, understanding may be limited. As a result, sharing knowledge on complex issues is likely to be more difficult because without visual cues it is harder to establish whether the receiver has understood the information (Hinds & Weisband, 2003). When face-to-face, it is easier to informally and inadvertently share information, even without verbalizing it (i.e., one can see that people are conducting certain activities or can observe their work situation). Furthermore, asynchronous communications technologies, although affording more time to respond to issues, may be prone to sequencing problems and lack of immediate feedback, which can result in miscommunications that are difficult to detect and resolve (Finholt & Sproull, 1990).

Cramton (2002a) illustrates five factors that can erode mutual knowledge and lead to misunderstandings in virtual teams. First, there is a failure to communicate and retain contextual information. For instance, Cramton (2001) found that students in virtual project teams tended to forget to share unique information about their own context, and also had difficulty remembering information about others' contexts. Second, unevenly distributed information (such as when one part of the group receives a certain email but others do not, or when people do not realize they have different information) can also be problematic (see next section on accessing dispersed knowledge). Third, the difficulty communicating and understanding the salience of information (i.e., which parts of a message are salient to different parties) and fourth, differences in speed or timing (such as due to differing access to communication technologies, technical problems, or transmission speeds) can also threaten mutual understanding. Finally, there is the difficulty interpreting the meaning of silence which can convey several things including agreement, disagreement, indifference, 'out of the office', or that the recipient did not know that a response was required.

Of particular relevance to virtual teams, is that site differences may have stronger influences on mutual knowledge than functional differences. For instance, Sole and Edmondson (2002) found that unique knowledge and practices developed at different sites within virtual product development teams and that this information was not shared between sites. People at the same site were found to share the same attitudes and approaches to work, despite the fact they came from different functions. Misunderstandings were more likely to occur due to taken-for-granted knowledge within a site rather than because of taken-for-granted knowledge within a function.

The evidence above suggests that mutual knowledge is critically important but more difficult to establish within virtual teams. Being provided with a

shared context, or experience and being aware of similarities and differences within the virtual team, may help create a foundation for the development of mutual knowledge. Direct experience of each other's contexts is also likely to help, such as having meetings or secondments at each other's work sites (Hinds & Weisband, 2003). Team members need to explicitly share and attend to information on the shared goals, task, processes, their whereabouts, availability, progress, and personal context to gain greater understanding of each other and the work they are doing.

Accessing dispersed knowledge

To take advantage of knowledge held by members in different locations, it has to be shared with the team and attended to by other team members. However, research evidence in co-located settings suggests that groups tend to focus on commonly held information and overlook uniquely held information (e.g., Stasser & Titus, 1985). Such research shows that unique information is often not mentioned or attended to, and so decisions are based on only part of the evidence available within the group. This effect may be exacerbated in virtual teams as team members may not realize they hold unique information, and may erroneously assume everyone knows that information. To compound this, communication via text-based media is slower, which means that less information is exchanged than in face-to-face groups (Siegel et al., 1986). Thus, there is even less opportunity for new information to become salient within the group, which further biases the discussion towards commonly held information.

The type of technology may affect the extent to which the above information sampling biases occur. For instance, Warkentin, Sayeed, and Hightower (1997) argued that asynchronous text-based technology does not always suffer from information exchange biases, due to the time for off-line consideration before replying. These authors found no differences between face-to-face and email groups in the proportion of unique information exchanged on a murder mystery task. However, these findings may be confounded by procedural differences between the conditions. The email group were able to retain their case notes throughout the duration of their three-week discussion, but after two days to digest the notes, the face-to-face groups had to hand their notes back to the experimenter at the beginning of their discussion (which lasted approximately 25 minutes).

To establish who has unique knowledge, groups need to know 'who knows what.' They therefore need a shared system to encode, store, and retrieve information (referred to as transactive memory by Wegner, 1987). Transactive memory involves tacit and explicit coordination, including: knowing who knows what; updating this information; and accessing and storing knowledge. It has been argued that transactive memory is more likely to develop among those with greater shared experiences, common language, and joint decision-

making activities (Hollingshead, 1998b). For instance, it has been found that groups who are trained together have more developed transactive memories, and so have greater ability to remember appropriate procedures and make fewer mistakes (Liang, Moreland, & Argote, 1995; Moreland, Argote, & Krishnan, 1998). Familiarity appears to have an impact on transactive memory. People that know each other well seem to have an implicit system for assigning responsibility for learning or retrieving information based on a common understanding of each other's expertise (Hollingshead, 1998a, b). However, the use of text-based communication technology has been found to disrupt these implicit transactive memory cue systems for retrieval amongst familiars (Hollingshead, 1998b). Thus, Griffith and Neale (2001) recommend that within virtual teams, technology needs to explicitly support the development of transactive memory among team members who do not know each other (such as by providing a learning structure through documentation of the group's work or emails). Technology also needs to support (or at least not interfere with) existing transactive memory structures within teams who do know each other well.

Overall, we might expect virtual teams whose members vary greatly in terms of expertise and perspective, to have more difficulty in developing transactive memory than co-located groups (Griffith & Neale, 2001). The diversity of knowledge within the team may not be perceptible unless there are explicit methods for identifying it. Otherwise, team members may assume they have the same knowledge, which will disrupt the development of transactive memory. In addition, assumptions about others' knowledge may be made on the basis of their social categorization, such as their profession, status, organizational membership, or location (Krauss & Fussell, 1990), which may or may not be accurate predictors of their knowledge.

The majority of research on accessing information within teams has been conducted using *ad hoc* groups with previously unacquainted members (Gruenfeld et al., 1996), and the information to be shared has usually been a list of facts (e.g., Hightower & Sayeed, 1995, 1996; Stasser & Titus, 1985). For real work tasks, the information exchanged is likely to contain ambiguous and irrelevant data, making it more difficult to decipher. Information sharing is therefore likely to be more complex, as the meaning and significance of data may need to be explained (Hightower & Sayeed, 1996). Thus, it is possible that in real-world virtual teams, with greater information load and more complex and ambiguous tasks, the biases described above would continue or even be exacerbated.

On the other hand, there is reason to believe that virtual teams may be less susceptible to information sharing problems. First, familiarity with communication partners has been found to reduce information-sampling biases in co-located groups (e.g., Gruenfeld et al., 1996). Familiarity may facilitate the sharing of unique knowledge due to a shared social identity and greater psychological safety for sharing and learning (Griffith & Neale, 2001). Unlike

ad hoc laboratory teams that have typically been used in information sharing research, real-world virtual team members will probably be more familiar with each other, especially when the team has worked together for a while. Second, in real-world settings, when teams are formed to take advantage of dispersed expertise, group members are likely to be aware that their membership is based on the information they bring to the group and so may be more aware of what task information is unique. Indeed, experimental evidence suggests that when a co-located team member's expertise is explicitly identified, then the bias towards common information is reduced and more unique information is obtained (e.g., Stasser, Vaughan, & Stewart, 2000). Therefore, teams within organisations may be less likely to suffer from information sharing biases and be more likely to share and attend to unique information. Nevertheless, as described previously, Cramton (2001) did not find this to be the case with regard to virtual team members sharing contextual information, and so there may still be a problem with accessing dispersed knowledge via technology.

Indeed, Hightower and Sayeed (1996) found that despite the fact team members knew they may not have the same information as each other on a murder mystery task, information exchange was less efficient using synchronous text-based technology than when face-to-face. Discussion was five times more biased under electronic than face-to-face conditions. Conflicting prediscussion opinions improved information exchange dramatically in face-to-face groups, but very little in electronic groups. Even though group members were more likely to contradict each other in electronic groups, they were unable to resolve conflicts sufficiently to become more effective. However, a limitation of this study is that the electronic groups were not aware of who their partners were and had little experience of using the technology; thus, these effects may not be as dramatic in real virtual teams.

The issue of accessing dispersed knowledge is closely related to problems of mutual understanding. Virtual teams need to ensure that they do not just focus on common knowledge, but explicitly focus on attending to new information and are aware of who holds different and unique knowledge within the team. To facilitate the development of such knowledge, teams need to share experiences (e.g., training and decision-making) and become familiar with each other. Communications technologies need to support the development and maintenance of this knowledge and may need to be varied for different levels of team member familiarity.

Decision-making and related biases

Once virtual teams have accessed dispersed knowledge, they need to use it to make work-related decisions. However, decision-making via text-based communications technology has been considered inefficient and suboptimal, as time to complete tasks is longer (see Baltes et al., 2002) and decision quality is

lower than in face-to-face groups (Dennis & Wixom, 2002). McGuire et al. (1987) suggested that decision-making is suboptimal due to the inability to sense how strongly virtual team members feel or not knowing when the group is ready to reach consensus, which may lead to making a decision with relatively little discussion. As seen in the previous section, decisions may be based on limited information, which will also be less effective. In addition, group decision-making can be prone to bias, which may be exacerbated in virtual teams. However, whilst some studies find that group polarization (decision shift to an extreme position) is greater via technology than face-to-face (Postmes, Spears, Sakhel, & de Groot, 2001; Sai, Tan, & Wei, 2002; Siegel et al., 1986; Spears, Lea & Lee, 1990), others have not found this to be the case (Cappel & Windsor, 2000; McGuire et al., 1987). Such effects may be more likely when normative influences are high, such as when group identity is primed (Postmes et al., 2001; Spears et al., 1990) or in tasks where the main objective is to reach a consensus.

Despite these potential downsides, communications technologies may be beneficial for some forms of decision-making, such as when evaluating others (see Weisband & Atwater, 1999). For example, Straus (1998) found that interviewers evaluated applicants more accurately in telephone interviews than by videoconferencing or face-to-face. She argued that this was due to the telephone eliminating distracting and irrelevant visual cues (such as poor eye contact and fidgeting). Moreover, a later paper revealed no differences between interviewer judgements in face-to-face and videoconference conditions (Straus, Miles, & Levesque, 2001). Communications technology may not, however, promote accurate ratings of others when status is introduced. Weisband et al. (1995) found that others were rated according to status rather than actual contribution in an experimental task conducted via communications technology. It may be harder to overcome these status stereotypes via technology, as less is known about the communication partners. The tendency to inflate one's own contribution to decisions and tasks also appears to be exacerbated in text-based communication, due to reduced ability to detect individuality and gain feedback about one's self (Weisband & Atwater, 1999). Such self-inflation may affect equity perceptions and cause motivational problems.

A meta-analysis of experimental studies by Baltes et al. (2002) revealed that text-based communication is associated with lower decision-making effectiveness, except under the very conditions that are least likely to exist in organizations (i.e., unlimited time and anonymous contributions). In real virtual teams, it is more likely that time will be limited (albeit not generally as limited as the 20 minutes often allowed in experimental studies), and that individuals will be selected on the basis of their expertise; and as such their individual identities and contributions will be known to other team members. The evidence above suggests that in organizations, decision-making in multi-disciplinary virtual teams when member identities are known may be

problematic and prone to bias, even if some of the biases experienced face-to-face are eliminated. Whilst enhancing the group's social identity may help remove problems of status and outgroup biases, it might foster other decision-making biases (e.g., polarization) and groups may settle on an answer too quickly without enough discussion. Therefore, decision-making tasks that do not benefit from visual anonymity, may be better conducted face-to-face or with richer technologies. Teams may also need enough time to exchange information (particularly if using text-based systems). Moreover, individuals will require a high level of individual feedback to counteract self-inflation biases regarding their own contribution.

SUMMARY AND CONCLUSIONS

Collaborative processes are different, complicated, hindered, and sometimes enhanced within virtual teams, due to the dispersion of colleagues and reliance on communications technology. However, this does depend on the diversity within the team, type of task, and aspects of the broader organizational context. For instance, less diverse teams conducting low interdependence tasks within a supportive organizational environment may well perform better than similar co-located teams. In contrast, a diverse virtual team conducting highly interdependent tasks, crossing multiple contexts with differing resources and support available at local sites, is likely to have far more difficulty building relationships, sharing knowledge, and coordinating activities. The greater diversity often found in virtual teams (particularly if globally dispersed) can complicate the collaborative processes, both positively (in terms of access to diverse expertise) but also negatively (reconciling differences can be more difficult virtually).

The factors involved in team relationships and information sharing clearly influence each other, and in some ways it is difficult to disentangle the two aspects. Poor relations can hinder information exchange and mutual understanding, and vice versa (e.g., Cramton, 2001). However, some actions may be beneficial for some processes but not others. For instance, focusing on similarities and enhancing group identity can help build relations and enhance work effort, but hinder the access to and use of unique knowledge. Instead, awareness of individual differences and who knows what is required for effective knowledge sharing. Gaining mutual knowledge appears to be an important factor across all the issues discussed in this chapter, and may help ameliorate some of the problems of working virtually. Of course, developing such mutual knowledge in virtual teams is challenging and appears to require some balance between being aware of differences and gaining familiarity and similarity by sharing experiences and contexts.

THEORETICAL AND PRACTICAL IMPLICATIONS

In spite of burgeoning research interest in virtual teams, we need to be careful about putting 'old wine in new bottles'. That is, while there is clearly some valuable recent theorizing (e.g., channel expansion theory, Carlson & Zmud, 1999; SIDE, Spears & Lea, 1992, and SIP, Walther, 1992) and more that needs to be done around issues that make virtual teams different from co-located ones, we must not forget to reach back to basic research on topics such as proximity, social distance, diversity, and sociotechnical theory that underpin the technological twists that challenge virtual teams. It is too easy to concentrate on the novel technology at the expense of understanding the human organization that technology both shapes and is embedded within.

Nevertheless, as Hinds and Bailey (in press) argue, with regards to team processes and effectiveness, existing models have been constructed with co-located teams in mind and therefore often have implicit assumptions (e.g., about proximity) that do not hold true for virtual teams. Thus, our understanding of basic team processes may be enhanced by studying them in a virtual context. Moreover, Robey, Schwaig, and Lin (2003) make the point that virtual teams are not just separated by distance and time, which would imply that we just use and extend pre-existing theories without radical revision. The virtual world of the team is a separate representation of reality, which is unbound by physical constraints and therefore is qualitatively different to that of the material world experienced when working face-to-face. They argue that the relationship between the virtual and material representations of the world need to be effectively intertwined so that organizations can take advantage of the relative strengths of each, rather than abandon one in favour of the other. Thus, the theoretical challenges are to build on what we know, and develop new thinking about virtual working.

Despite the sometimes conflicting findings in the literature described in this chapter, some tentative and broad practical implications can be made:

1 *Foster awareness of similarities and differences*. Emphasize a common identity by focusing on similarities, establishing common goals, providing clear team boundaries, and by increasing task and reward interdependence. At the same time differences in aspects relevant to the task, such as individual knowledge and expertise need to be highlighted, as well as relevant cultural and procedural differences (but without detracting from the common identity).
2 *Be aware of the possibility of misunderstandings*. Give people the benefit of the doubt and reduce the possibility of misunderstandings by establishing mutual knowledge. In particular, face-to-face meetings at the beginning and at junctures where interdependent working is required

will help to develop mutual understanding and build relationships. Maintaining a balance between different forms of communication (varying in richness), backed up by a range of structures (clear roles, deadlines, protocols, etc.) may also help reduce misunderstandings.

3 *Provide appropriate skills and supports*. People skills as well as technical skills will be required such as self-management, communication skills, and interpersonal awareness. The organizational context also needs to support this way of working by: having a collaborative, trusting, people-oriented culture; appropriately monitoring and rewarding team outcomes; and providing adequate resources.

GAPS IN THE LITERATURE AND FUTURE RESEARCH

As this literature is still relatively new, there are many gaps and opportunities for future research. Some authors have argued that a decompositional approach focusing on subprocesses such as attributions and mutual knowledge will be more successful at distinguishing between virtual and co-located working than broader concepts such as relationship quality, trust, and conflict (Cramton & Orvis, 2002; Kraut et al., 2002; Mortensen & Hinds, 2001). However, it might be a bit soon to forget the more expansive concepts, as findings are not conclusive and few attempts have been made to compare co-located and virtual working on any of these variables. In particular, the literature is crying out for longitudinal studies in real organizations (not just descriptive case studies), where many of these concepts can be explored outside of the lab and student teams that have dominated the literature so far. There is a need for contingency theories to clarify under what circumstances we would expect collaborative processes to be hindered or enhanced. Several authors (e.g., Carlson & Zmud, 1999; Hinds & Bailey, in press; Spears & Lea, 1994; Walther, 1992, 1996) have made a start in this direction, but more work is required.

We also think our understanding of virtual teams would be enhanced by research that seeks to move beyond the slightly artificial distinctions and comparisons between virtual and co-located teams. As we argued earlier, teams found in organizations do not separate into neat and distinct categories, as some laboratory-constructed teams would suggest. By explicitly investigating how variables such as team dispersion, distances, configuration, and composition are related to virtual team processes, we will eventually build up a more nuanced understanding of how virtual teams work.

In addition, much of the research so far has concentrated on text-based technologies such as email or group decision support systems. More work is required on different technologies such as audioconferencing (which is used frequently in organizations), videoconferencing (the use of which is likely to grow as technology improves), and the recently developed instant messaging

systems (continuous connections via computer) as their use in organizations may also grow.

With regards to collaborative processes, and particularly in relation to gaining a shared understanding and building relationships, an interesting avenue of future research would be to explore perspective taking (seeing the world from another person's viewpoint) within virtual teams in more detail. Such a focus would not only involve cognitive elements of perspective taking, such as reversing attribution biases, but also more emotive aspects such as empathy and concern. Knowing how such processes work and develop within virtual teams is likely to help communication partners maintain good working relations and be more effective. Gaining mutual understanding appears to be a key enabler with regard to virtual team-working, and thus a greater understanding of how this can be enhanced within organizations is needed. Other knowledge related research such as how teams access dispersed knowledge and make decisions within multi-disciplinary virtual teams in real organizations is also required. Employee motivation and engagement in these processes (juggled with local demands) has not been explored in detail and is also worthy of greater attention.

Finally, there is much we can already say about virtual team-working, but also much more to learn. The years ahead are an exciting and crucial time for those interested in studying this phenomenon. Such ways of working are likely to continue to proliferate and so opportunities to examine virtual teams of varying levels of virtuality in different contexts is bound to grow.

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Chapter 8

LEARNING AT WORK: TRAINING AND DEVELOPMENT

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Today, learning is a core requirement in many work organizations and at many work places; its importance will further increase in the future. This high relevance of learning is caused by a number of interrelated developments: (1) ongoing changes in technologies and work procedures; (2) changes in job requirements such as the widespread use of computer technology, an increased focus on customer service, and the broadening of work roles; and (3) changes in employment contracts and job concepts. All these developments make continuous and lifelong learning and development a necessity for most individuals.

Learning at work may take different forms. It ranges from the participation in formal training and development programs to ongoing learning activities while accomplishing one's tasks and voluntary learning activities during one's leisure time. In this context, work and organizational psychology faces a number of questions: How do individuals improve their knowledge and skills? How do they manage their learning activities? Which learning activities result in favorable outcomes? How can organizations support learning activities at the individual and the team level?

In this chapter, we review research progress in the field of learning at work. We focus—although not exclusively—on work published since the mid-1990s and refer to the broad range of both formal and informal training and development activities. However, a thorough review of specific aspects of training design and training methods is beyond the scope of this chapter. Up to date reviews are available elsewhere (cf. Goldstein & Ford, 2002; Kraiger, 2003; Salas & Cannon-Bowers, 2001; Salas, Cannon-Bowers, Rhodenizer, & Bowers, 1999). We concentrate on research within work and organizational psychology. Interested readers may also find promising approaches to learning in works originating from other disciplines such as educational

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science, management science, or sociology (e.g., Blackler & McDonald, 2000; Engeström, 2001; Guile & Griffiths, 2001; Smith, 2001).

In the first two sections of this chapter we give an introduction into the learning concept and describe the relevance of learning in more detail. In the third section we present a taxonomy of learning that differentiates between training and development on the one hand and formal and informal learning settings on the other hand. The forth section focuses on specific approaches to learning and discusses learning strategies, deliberate practice, and situated learning. In the fifth and sixth sections, we summarize research on individual and situation characteristics as predictors of learning. Specifically, we refer to goal orientation, motivation to learn, cognitive abilities, and age as individual characteristics, and organizational arrangements, social factors, and technology as situation characteristics. Finally, in the last section we suggest directions for future research and discuss implications for practice.

LEARNING CONCEPT

On a very general level, learning can be described as a process associated with a relatively permanent change in behavior (potential) resulting from experience. Within the work and organizational context, learning processes aim at changes in the motivational, cognitive, and behavioral domain (Kraiger, Ford, & Salas, 1993; for brief overviews over a broader range of learningconcepts cf. Maier, Prange, & von Rosenstiel, 2001; Wenger, 1998, pp. 279–280). For example, employees have to learn how to use a new spreadsheet program, how to show better communication skills in direct interactions with customers and clients, or how to supervise members of a health care team.

A lot of learning takes place in order to respond to current jobs' needs. However, individuals also seek to acquire knowledge relevant for future tasks and jobs. This is a challenge in as much as it is not yet clear whether specific knowledge, skills, and behaviors to be learnt may be relevant for a person's future job.

For many years, learning has been seen as a process that takes place mainly within formal training settings such as courses or seminars. This perspective has been reflected in research activities which were dominated by studies about individual training programs (Ford, 1997). Although formal training still constitutes an important learning setting, much of the work-relevant learning occurs outside formal training programs. Thus, during recent years a broader perspective on learning with a 'more integrated and long-term orientation' (Ford, 1997, p. 11) emerged. This perspective also subsumes development activities such as following through a broad range of job experiences under the learning concept (Noe, Wilk, Mullen, & Wanek, 1997).

Learning at work can occur at different levels. Researchers argue that learning is not necessarily an individual–level phenomenon but can also occur at the team and organizational level (Argote, 1993; Argyris & Schön, 1978; Huber, 1991). However, because of space constraints, our chapter focuses on individual learning.

RELEVANCE OF LEARNING

In the past, a considerable number of persons entered the workforce assuming that they have accumulated knowledge sufficient for their entire career. Recently, the number of jobs that requires continuous learning has increased. In this time in which we face the quickly 'changing nature of work' (Howard, 1995) this is even more the case. Several trends coincide that contribute to the increasing necessity to learn at work—now and in the future. First, jobs are changing and many—albeit by far not all—become increasingly more complex. This trend is due to several developments including the use of sophisticated technology applications and increased customer demands (Thayer, 1997). In addition, changes in jobs are not single events that employees have to master once. Rather, job requirements continue to undergo permanent changes (London & Mone, 1999). Therefore, continous learning is a very important part of many jobs.

Second, employer–employee relationships are changing. This phenomenon—often referred to as change in the 'psychological contract' (Rousseau, 1995) implies that organizations do not offer established and reliable career paths and do not provide life-long employment any longer. Employees are increasingly responsible for managing their careers and securing their employability. Moreover, many employees pursue multiple careers during their work lives (Hall & Mirvis, 1995) making life-long learning a necessity.

Third, because of demographic changes the workforce (at least in highly industrialized areas such as North America or Western Europe) will grow slowly. Therefore, it is argued that it is necessary to take advantage of the potentials of the existing and newly entering workforce (Goldstein & Ford, 2002). In addition, it is expected that the basic skills of those individuals who are entering the workforce might not be well-developed (Goldstein & Ford, 2002). Furthermore, the workforce grows older (Thayer, 1997). This implies that individuals may have to undergo multiple learning experiences during their working life. In addition, older employees may have specific training and learning needs (Warr, 2001).

In summary, all these developments render learning a basic necessity both for organizations and for individuals. Organizations need employees who are willing and competent at constantly updating their knowledge and skills. Individuals have to engage in learning activities in order to meet the

changing task requirements at hand, to pursue their careers, and ensure their employability in the long run (Fossum, Arvey, Paradise, & Robbins, 1986). A large body of research examined whether learning is indeed associated with favorable outcomes. Kraiger et al. (1993) suggested that learning (and particularly training) can result in cognitive, skill-based and affective outcomes. Cognitive outcomes include the acquisition of declarative knowledge, the improvement of mental models, and the refinement of meta-cognitive skills. Skill-based outcomes refer to the compilation of knowledge and the automaticity of cognitive and other processes. Affective outcomes comprise attitudinal and motivational outcomes. In turn, these outcomes are expected to contribute to an increase in job performance.

The positive effects of training at the individual level are well-documented (Arthur, Bennett, Edens, & Bell, 2003; Burke & Day, 1986; Guzzo, Jette, & Katzell, 1985). However, the majority of studies examined immediate training outcomes; more long-term effects of learning received far less attention (Colquitt, LePine, & Noe, 2000). This is particularly problematic because immediate training outcomes are only weakly correlated with transfer and on-the-job behavior (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997). Nevertheless, studies that did examine longer term effects of training reported positive outcomes (Arthur et al., 2003). In addition, studies that addressed the outcomes of learning outside formal training programs also reported positive associations with job performance (Noe, 1996; Sonnentag & Kleine, 2000; Tann, Blenkinsopp, & Platts, 2001). It has to be noted that these findings are based on cross-sectional study designs. Although it is plausible to assume that such learning activities outside a formal training have positive effects, it would be premature to state that these learning activities increase performance. Therefore, the causal relationship between learning outside formal training settings and performance skills needs to be empirically confirmed.

Tharenou (2000) reviewed a total number of 29 studies on the effects of training on the organizational level. Most studies that addressed outcomes such as employee retention and employee satisfaction found positive effects of training. Longitudinal studies that examined organizational performance measures such as productivity/output, quality, and customer satisfaction, found evidence for a positive effect of training, resulting in improvements of between 7 and 10%. However, these positive effects are not necessarily reflected in positive effects in the bottom line: studies, focusing on financial performance indicators as outcome of training resulted in inconclusive findings (cf. Bartel, 2000).

LEARNING IN FORMAL AND INFORMAL SETTINGS

Learning at work comprises a broad range of different activities occurring in a variety of settings. A first differentiation refers to the distinction between

training and development. Noe et al. (1997) characterized training as 'a planned effort by a company to facilitate the learning of specific knowledge, skills, or behaviors that employees need to be successful in their current job' (p. 154 and 156). Development activities also aim at the improvement of knowledge, skills, and behavior. However, they do not focus on a person's current job but on personal and professional growth (Noe et al., 1997). Their main purpose is the improvement of knowledge, skills and other individual prerequisites that will be helpful in future jobs and that will ensure long-term individual and company performance.

A second differentiation refers to formal versus informal learning activities (Chao, 1997). Formal learning activities comprise structured activities initiated and sustained by the organization. Typical examples include seminars or courses initiated by the organization, but also formal mentoring programs or planned job rotation experiences can be subsumed under formal learning activities. These activities often have a clearly defined goal and follow a more or less strict schedule. Informal learning activities are relatively unstructured and are most often initiated by the employee themselves. They include on-the-job learning experiences, self-managed learning, and also informal exchange of information aiming at the improvement of skills and knowledge. Such informal learning activities may or may not be supported by the organization (Chao, 1997) and can also occur incidentally (Marsick, 2001).

Both training and development activities can take place in formal and informal settings. Table 8.1 gives an overview of typical examples of formal and informal activities occurring in training and development settings.

Participation in training courses and seminars are typical examples for formal learning activities that aim at a person's present or near-future job. Research on training designs and training methods has a long tradition within work and organizational psychology (for a short overview cf. Kraiger, 2003). During the 1990s interest in training issues further increased (cf. for recent overviews, Goldstein & Ford, 2002; Hesketh & Ivancic, 2002; Salas & Cannon-Bowers, 2001; Salas, et al., 1999).

Within training, a broad range of methods can be used such as lectures, behavior modeling, simulations, or well-planned practice sessions (for a

Table 8.1 Examples of learning activities in formal and informal learning settings.

	Aiming at current or near-future jobs (Training)	Aiming at future jobs (Development)
Formal learning settings	Participation in training courses	(Career) development programs
Informal learning settings	Organizational socialization and adaptation to new jobs	Career-related continuous learning

recent meta-analysis on the effectiveness of various training methods cf. Arthur et al., 2003). In addition to the increased availability of computer-based learning technologies, active learning and team training approaches emerged as promising concepts in training research and practice. Active learning approaches stress trainees' roles as active participants in the learning process. Specific active learning interventions focus on the role of exploration (Debowski, Wood, & Bandura, 2001) and the beneficial effects of making errors during the learning process (Gully, Payne, Koles, & Whiteman, 2002; Heimbeck, Frese, Sonnentag, & Keith, 2003; Ivancic & Hesketh, 2000). Team training approaches reflect the increased interest in team-based work organizations. Within team training, members of work teams acquire knowledge and skills, and practice behaviors needed to work together effectively. Among others, cross-training is a typical implementation of team training approaches. Cross-training aims at the development of shared mental models among team members and teaches each team member the roles and responsibilities of his or her fellow team members (Volpe, Cannon-Bowers, Salas, & Spector, 1996). The positive effects of cross-training are well documented (Cannon-Bowers, Salas, Blickensderfer, & Bowers, 1998; Marks, Sabella, Burke, & Zaccaro, 2002; Volpe et al., 1996).

A core challenge for all training interventions is training transfer, that is, the question whether trainees apply and maintain what they have learned during the training once they are back in their jobs. Within the past decade, transfer of training issues received much attention and much progress has been made (Ford & Weissbein, 1997). Hesketh (1997b) argued that effective training interventions do not only require a training needs analysis (cf. Tannenbaum & Yukl, 1992) to be performed before designing the training, but in addition, a transfer of training needs analysis is required. Such a transfer of training needs analysis identifies the meta-cognitive skills needed for job performance as well as transfer dimensions such as variability of task demands (Hesketh & Ivancic, 2002). Research identified a number of factors that are crucial for transfer to occur. These factors include—among others—transfer climate (Tracey, Tannenbaum, & Kavanagh, 1995), peer and particularly supervisor support (Tracey et al., 1995), opportunity to perform (Ford, Quiñones, Sego, & Sorra, 1992), and a short time-interval between training and transfer opportunity (Arthur, Bennett, Stanush, & McNelly, 1998).

Informal learning activities that focus on the present or near-future job often occur in the context of organizational socialization (Chao, 1997) or when adapting to a new job or new job demands. Chan (2000) defined individual adaptation as 'the process by which an individual achieves some degree of fit between his or her behaviors and the new work demands created by the novel and often ill-defined problems resulting from changing and uncertain work situations' (pp. 141f.). To re-establish the fit

between person and new work demands individuals can learn (change their cognitive, motivational, and emotional states) and can modify their role (Ashford & Saks, 1995; Nicholson, 1984). Therefore, learning is one crucial instantiation of adaptation (Pulakos, Arad, Donovan, & Plamondon, 2000; Pulakos et al., 2002). In an initial step, employees have to recognize that they have to change well-established behaviors (Betsch, Haberstroh, Glöckner, Haar, & Fiedler, 2001; LePine, Colquitt, & Erez, 2000; Schunn & Reder, 2001). Furthermore, in some cases they have to decide what they have to learn in order to cope with the new situation. Often, they have to learn by themselves. Although learning takes time and effort, in times of change employees still have to deal with their daily work tasks. One context in which adaptation processes take place is organizational socialization (Bauer, Morrison, & Callister, 1998). Here, a newcomer's proactive behaviors, such as information seeking and feedback seeking, support the adjustment to the new job (Chan & Schmitt, 2000). It helps to master the new task, to develop a role, and to build social relationships at work. Furthermore, manager clarifying or supporting behavior has a positive impact on the adaptation process (Bauer & Green, 1998).

Formal development activities aim at future jobs. Often, these future jobs are ill-specified. Major formal development activities comprise employee assessments, formal courses and programs, specific job experiences, and mentoring relationship (Noe et al., 1997). Employee assessments are aimed at the measurement of a person's knowledge, skills, and behaviors in order to identify performance potential. For these assessments a broad range of instruments are used ranging from relatively simple self-report measures to assessment center procedures (Altink & Verhagen, 2002; Lohaus & Kleinmann, 2002; Noe et al., 1997). An approach that is increasingly used in companies and that has received growing research interest during the past decade is the so-called 360-degree feedback, also known as multi-source feedback. Typically, a 360-degree feedback procedure provides a person with feedback from peers, supervisors, subordinates, and customers and contrasts these assessments with the target person's self-assessments.

Formal courses and programs are held in a broad variety of settings and can cover a broad range of topics. Among the most well known examples are Master's of Business Administration Programs. Exposing employees to specific job experiences can also be a part of formal development activities. For example, such specific experiences are provided in the context of entry level trainee programs, expatriate assignments, high potential development activities, and other assignments such as job rotations and promotions (Day, 2001; Göbel-Kobialka, 1998; Yan, Zhu, & Hall, 2002). The basic idea behind the use of job experiences as a formal development device is the observation that most development takes place *on* the job (McCall, Lombardo, & Morrison, 1988).

In addition, interpersonal relationships may be beneficial for employee development. Within formal development programs, formal mentoring relationships play an important role. Although mentoring does not exclusively target learning, benefits for employee learning have been documented (Carter & Francis, 2001; Lankau & Scandura, 2002).

Finally, *informal development activities* comprise relatively unstructured and often serendipitous activities that aim at the acquisition of knowledge, skills, and behaviors assumed to be useful for future jobs. Typical examples include activities such as reading publications that are only weakly related to one's job, volunteering in one's community to broaden one's knowledge about administration, or learning a second (or third) language not yet needed for one's job. Many of these informal development activities can be subsumed under the concept of 'career-related continuous learning' (CRCL)—although CRCL is not necessarily restricted to informal (versus formal) learning activities. London and Smither (1999) defined CRCL as an 'individual-level process characterized by a self-initiated, discretionary, planned, and proactive pattern of ... activities that are sustained over time for the purpose of applying or transporting knowledge for career development' (p. 81).

London and Smither (1999) proposed a model of CRCL comprising three stages: prelearning, learning, and application of learning. Prelearning refers to an individual's recognition that CRCL is needed and to the setting of learning goals. Learning refers to the process of acquiring new skills and knowledge as well as monitoring the learning processes. Application of learning occurs when newly learned knowledge, skills, and behaviors are used in the work context. When comparing CRCL with learning in more traditional and more formal learning settings, it can be assumed that individual characteristics—particularly motivational prerequisites such as self-efficacy, mastery orientation, and proactivity—as well as organizational factors and practices that foster these motivational prerequisites, become increasingly important. Whereas within traditional learning approaches it is the organization's task to identify training needs and assign individuals to training interventions (Goldstein & Ford, 2002), the CRCL approach stresses the individual's responsibility to recognize learning needs and to initiate appropriate learning activities.

Although the various learning activities can be differentiated at the conceptual level, in practice they often overlap. For example, a training course may not only teach knowledge or skills relevant for a trainee's current job but also knowledge only relevant for future jobs. Or a person may feel that he or she needs to acquire knowledge in a specific domain and will start with informal development activities such as browsing the internet or reading related books. However, soon he or she will realize that this approach does not take him or her far enough and will participate in a formal training program focusing on the specific topic of interest.

SPECIFIC APPROACHES TO LEARNING

In this section we review specific approaches to learning such as research on learning strategies, deliberate practice, learning through experience, and situated learning. These approaches are not necessarily related to formal versus informal settings and may aim both at present and future jobs.

Learning Strategies

On a very general level, learning strategies refer to individuals' active efforts to accomplish learning (Warr & Allan, 1998). Research on learning strategies has a long tradition in studies within classroom settings and has been applied to the work context only recently. Warr and Allen (1998) developed a taxonomy comprising nine learning strategies in the work context. This taxonomy comprises cognitive learning strategies, behavioral learning strategies, and self-regulatory strategies. Cognitive learning strategies comprise the rehearsal of learning material as well as the organization and elaboration of material. Behavioral learning strategies include interpersonal help-seeking, seeking help from written material, and the practical application of newly learned skills or behavior. Self-regulatory strategies include emotion control, motivation control, and monitoring of comprehension processes. There is evidence from factor analytical studies that it is possible to empirically differentiate between these learning strategies (Holman, Epitropaki, & Fernie, 2001; Warr & Downing, 2000). However, it was difficult to clearly confirm the assumed factor structure for the organization and elaboration items of the cognitive learning strategies. Rather, data suggested a distinction between extrinsic and intrinsic work reflection (Holman et al., 2001). Extrinsic work reflection implies to actively reflect about how one's work relates to that of others and to the company as a whole. Intrinsic work reflection implies to actively reflect about one's job and to figure out how new information relates to it.

Warr and Downing (2000) examined the effects of various learning strategies on knowledge change in a sample of 152 young adults who followed a nine-month training course to become a vehicle mechanic. Knowledge tests were administered before and after each training module. After controlling for demographic variables, learning ability, learning anxiety, and learning motivation, Warr and Downing found no main effects of learning strategies on knowledge gain. However, post-training knowledge was predicted by interactions between learning strategies and learning anxiety. For trainees with high levels of learning anxiety negative correlations were found between use of learning strategies and knowledge gain. For trainees with low levels of learning anxiety, the correlations tended to be positive, with a significant positive correlation between written help-seeking and knowledge gain. Moreover, for four out of eight strategies (rehearsal,

written help-seeking, practical application, and emotion control) the correlations differed significantly between high and low anxiety trainees.

These findings suggest that the use of learning strategies does not necessarily result in learning and that the application of learning strategies might not be useful for all persons. Unfortunately, those who would need most support in learning (i.e., high anxiety trainees) do not benefit from the use of learning strategies, rather the use of learning strategies in the case of high learning anxiety might be detrimental.

Other studies did not explicitly use Warr and Allen's (1998) taxonomy but assessed other types of learning activities. A closer look at these activities, however, suggests that some of them are closely related to the learning strategies spelled out in Warr and Allen's taxonomy. Aiman-Smith and Green (2002) examined the use of learning activities in the context of a new manufacturing technology implementation. Specifically, they examined the relationship between 'preparatory learning quality' and 'operational learning quality'. Preparatory learning quality refers to the opportunity to study and practice with the new technology before actually operating it in the working process. Operational learning quality refers to the opportunity to learn during the operation process by operating the technology oneself or by observing others operating it. The two learning activities, particularly operational learning quality, are similar to what Warr and Allen have called 'practical application'. Analyses showed that operational learning quality, but not preparatory learning quality was significantly related to outcome measures: persons who experienced a high level of operational learning quality reported higher satisfaction but were slower in becoming competent in operating the technology (as indicated by their supervisors). This finding supports the observation also found in training research: learning activities that learners experience as satisfying do not necessarily result in the best learning outcomes (Hesketh, 1997a).

Lankau and Scandura (2002) reported findings from a study on learning in mentoring relationships and differentiated between two learning approaches: 'relational job learning' and 'personal skill development'. Relational job learning refers to learning about one's job in relation to other jobs. This type of learning seems to be closely related to what Holman et al. (2001) called 'extrinsic work reflection'. Personal skill development refers to the learning of interpersonal skills. Data were gathered in a health care setting and multiple regression analysis showed that both relational job learning and personal skill development were negatively related to role ambiguity and positively to job satisfaction. In addition, relational job learning was negatively related to intentions to leave the organization. This study illustrates that learning might not only be relevant in terms of knowledge gain and acquisition of skills; broader job attitudes may benefit as well.

Deliberate Practice

Another approach to learning at work was derived from research on expertise development. Ericsson, Krampe and Tesch-Römer (1993) suggested that expert performance develops as the result of accumulated deliberate practice activities. Deliberate practice comprises effortful activities aiming at the improvement of one's current performance level. Deliberate practice requires time and energy. In addition, Ericsson et al. (1993) assumed that deliberate practice is not inherently motivating. There is increasing evidence from domains such as music and sports that deliberate practice is related to high performance (Davids, 2000; Hodge & Deakin, 1998; Krampe & Ericsson, 1996).

Other studies applied the deliberate practice concept to more classical work contexts. For example, Dunn and Shriner (1999) examined deliberate practice in teaching. In a first study, Dunn and Shriner administered a questionnaire to 136 teachers. Based on a ranking procedure the authors identified six planning and evaluation activities that incorporate aspects of deliberate practice and that potentially increase teaching effectiveness (e.g., preparing materials needed for instructional activities and mentally planning instructional strategies and activities). In a second study, Dunn and Shriner analyzed the activities of eight experienced teachers in more detail and reported that teachers feel that planning and evaluation activities provide opportunities for learning—although teachers may not initiate these activities with the purpose of learning. Unfortunately, Dunn and Shriner did not examine whether these deliberate practice activities actually result in learning and improve performance. Sonnentag and Kleine (2000) studied deliberate practice in a sample of insurance agents. They found that 62% of the interviewed insurance agents pursued at least one type of deliberate practice activity. Typical examples of deliberate practice in this professional domain included activities such as running mental simulations of difficult sales scenarios, asking for feedback, and preparing for difficult situations. Moreover, insurance agents who spent a high amount of time on deliberate practice activities received higher performance ratings by their supervisors than agents that spent only a little time. This relationship remained significant when controlling for years of experience, number of cases handled, or amount of time spent on other performance enhancing activities.

Taken together, these studies show that individuals deliberately engage in learning and practice activities at work. Of course, these activities must meet the requirements of the specific jobs and therefore they might look differently to practice in music or sports. The above cited literature indicates that each job requires unique activities for deliberate practice. However, there are certainly activities applicable to a broad variety of jobs. Future research should try to identify these. Moreover, longitudinal studies are needed to

investigate whether deliberate practice at work increases job performance in the long run.

Learning Through Experience

This approach assumes that experiences play a core role in learning. Kolb (1984) proposed an experiential learning theory in which learning is seen as 'the process whereby knowledge is created through the transformation of experience', that is through 'the combination of grasping and transforming experience' (p. 41). Grasping experiences comprises the learning modes of concrete experience and abstract conceptualization, and transforming experience comprises the modes of reflective observation and active experimentation. In addition, experiential learning theory assumes that individuals use different styles when learning from experience. More specifically, four learning styles are proposed, namely a diverging style, an assimilating style, a converging style, and an accommodating style. Experiential learning theory assumes that—among other factors—an individual's professional career choice and current job role—influences his or her learning style.

Within experiential learning theory, much effort has gone into the development of learning style questionnaires (for an overview, cf. Mainemelis, Boyatzis, & Kolb, 2002). There is an ongoing debate about the psychometric properties of these learning style questionnaires (Sadler-Smith, 2001; Swailes & Senior, 1999). Although most research based on experiential learning theory has been accomplished in educational settings with students, promising applications in work settings comprising management, nursing, and accounting have been described (Kolb, Boyatzis, & Mainemelis, 2001).

Other scholars focused on more situational aspects of learning through experience. McCauley and her coworkers aimed at identifying these features of so-called developmental jobs, that is jobs that enable and foster learning from experience (McCauley, Lombardo, & Usher, 1989; McCauley, Ruderman, Ohlott, & Morrow, 1994). By particularly focusing on challenging job situations, they described job transitions, task-related characteristics, and obstacles as core aspects of developmental jobs. McCauley et al. (1994) reported positive relationships between developmental components of managerial jobs and on-the-job learning. In a more recent study, Brutus, Ruderman, Ohlott, and McCauley (2000) found that organization-based self-esteem moderated the effect of challenging job components and managerial development with low self-esteem individuals showing a stronger relationship than high self-esteem individuals. Taken together, there is some evidence that the degree to which jobs offer opportunities for challenging experiences is related to on-the-job learning. However, longitudinal studies are still missing. Thus, it can not be ruled out that individuals who

show extensive on-the-job learning activities (for whatever reasons) perceive more challenges in their jobs or even search for these challenges.

Situated Learning

A completely different approach to learning and development at work has been brought forward by researchers focusing on a situated learning perspective (Brown & Duguid, 1991; Lave & Wenger, 1991). This perspective is based on a constructivist view of learning and working. Proponents of this approach reject the idea that the acquisition of explicit and abstract knowledge constitutes learning; learning is rather seen as a social process of constructing meaning and understanding. Thus, learning cannot be separated from the social and physical context within which it occurs. The crucial idea is that individuals do not learn in isolation but within a social context. Such social learning contexts are often described as 'communities of practice'. Wenger, McDermott, and Snyder (2002, p. 4) define communities of practice as 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis'. Thus, communities of practice are not necessarily associated with formal organizational structures but may develop across the borders of departments or organizations.

Within the past decade, organizations have become increasingly interested in the idea of communities of practice (Huysman & van Baalen, 2001; Lesser & Storck, 2001; Wenger, McDermott, & Snyder, 2002). The popularity of the communities of practice is mainly based on the experience that informal exchange of information, knowledge, and skills among professionals as well as between experienced workers and newcomers is necessary to keep up with the fast development of increasingly complex work procedures and technologies.

Quantitative studies about communities of practice are still rare. Most conclusions about communities of practice are based on evidence from ethnographic and other case studies (e.g., Henning, 1998; Lathlean & Le May, 2002). Although these studies offer important insights, we also need quantitative studies about communities of practice. Future studies might investigate personal and situational variables that differentiate between successful and less successful communities. Moreover, the link between communities of practice and organizational performance has to be confirmed in quantitative studies.

INDIVIDUAL CHARACTERISTICS

Many studies examined individual characteristics as predictors of training effectiveness and development. In this section, we focus on those characteristics that have been most frequently discussed when it comes to participation

in learning and benefiting from learning. Specifically, we summarize research findings on goal orientation, motivation to learn, cognitive abilities, and age.

Goal Orientation

The goal orientation concept comes from the field of educational psychology (Ames & Archer, 1988; Dweck & Leggett, 1988; Nicholls, 1984; cf. for reviews, Beaubien & Payne, 1999; Utman, 1997), and has recently been introduced to work and organizational psychology (Button, Mathieu, & Zajac, 1996; Farr, Hofmann, & Ringenbach, 1993). Learning goal orientation is defined as the desire to increase one's competence by developing new skills. Learning goal orientation is associated with an adaptive response pattern where individuals increase their effort in the face of failure and choose to pursue difficult tasks. Performance goal orientation, in contrast, reflects a desire to demonstrate one's competence and to be positively evaluated by others (Button et al., 1996). Performance goal orientation is linked to a maladaptive response pattern: individuals high in performance goal orientation are assumed to be less persistent and to choose easier tasks (Dweck, 1989). Implicit theories individuals hold about whether abilities are fixed or malleable are discussed as possible antecedents of goal orientation: an implicit theory of ability as malleable is linked to learning goal orientation; the implicit theory of ability as a fixed entity is linked to performance goal orientation (Button et al., 1996; Nicholls, 1984). However, the proposed link between performance goal orientation and a fixed-entity theory has not been empirically confirmed whereas an implicit theory of ability as malleable is in fact related to learning goal orientation (Beaubien & Payne, 1999; Maurer, Wrenn, Pierce, Tross, & Collins, 2003). Some researchers argue that performance goal orientation is best regarded as a two-dimensional construct (Jagacinski & Duda, 2001; VandeWalle, 1997) comprising a proven performance goal orientation as well as an avoid goal orientation. Most of the research has nevertheless been done on the effects of a single performance goal dimension.

In a recent meta-analysis about the effects of dispositional goal orientations on job and academic performance, Beaubien and Payne (1999) showed that learning goal orientation was related to task-specific self-efficacy, self-set goal level and task performance, while performance goal orientation correlated only minimally with these variables. In addition, the positive effects of learning goal orientation have been shown in relation to effort (VandeWalle, Brown, Cron, & Slocum Jr., 1999), feedback seeking (Tuckey, Brewer, & Williamson, 2002; VandeWalle, Ganesan, Challagalla, & Brown, 2000), and learning strategies (Fisher & Ford, 1998; Ford, Smith, Weissbein, Gully, & Salas, 1998). One should note that much of the above quoted research has been done with undergraduate students, and performance in a complex task or in some kind of exam served as an indicator of learning. Exceptions are

studies on the effects of goal orientation in a training program with MBA students (Brett & VandeWalle, 1999; Gist & Stevens, 1998; Stevens & Gist, 1997), technical employees (Brown, 2001), and labor union members (Hertenstein, 2001). These studies also show a positive effect of dispositional learning goal orientation on training outcomes.

While adopting a learning goal orientation has generally been shown to be superior to adopting a performance goal orientation, it is still unclear if pursuing both learning and performance goals simultaneously is superior to pursuing learning goals alone (Barron & Harackiewicz, 2001) or if pursuing performance goals is even detrimental for learning. The dimensionality of the performance goal orientation might be the issue here. Research shows that only the avoid performance goal orientation construct is related to lower levels of self-set goals, lower self-efficacy, and lower levels of exerted effort (VandeWalle, Cron, & Slocum Jr., 2001).

While it has always been assumed that goal orientation contains dispositional as well as situational influences (Button et al., 1996), most researchers examined goal orientation as a relatively stable individual disposition and neglected the situational aspect of the construct. Exceptions are studies on post-training interventions after training in negotiation skills (Gist & Stevens, 1998; Stevens & Gist, 1997), or on the effects of manipulated goal orientation on performance in a complex task (Mangos & Steele-Johnson, 2001; Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000; Tabernero & Wood, 1999; Winters & Latham, 1996). This research generally shows similar results as the research on dispositional goal orientation, including the positive effects of learning goal orientation on strategies, self-efficacy, self-set goal-level, effort and positive affect. Goal orientation was manipulated in these studies by varying the instructions ('see the task as a learning opportunity' versus 'try to demonstrate your ability'), by manipulating the fundamental implicit theory of ability, or explicitly setting learning versus outcome goals. The most elaborated manipulation contained modelling of behavior, teaching of self-management techniques, and goal-setting (Gist & Stevens, 1998). The positive effects of situational goal orientation call for research on the manipulation and encouragement of learning goal orientation in organizational settings. This might be possible by changing the reward structure (Noe et al., 1997), assigning learning goals to employees in addition to performance goals (VandeWalle, 1997), or by managers rewarding effort in addition to achievements and encouraging employees for trying out new things (Roberson & Alsua, 2002). Increasing the presence of learning cues that induce a learning goal orientation might be possible even in the presence of performance cues necessary in a work setting (Roberson & Alsua, 2002).

In contrast to most other research, Steele-Johnson et al. (2000) showed that performance goal orientation (manipulated by task instructions) is superior to learning goal orientation, but only on simple tasks. The authors explain this finding by stating that on easy tasks, necessary skills are

automatized and further skill development would be detrimental. As Bell and Kozlowski (2002) found an interaction between ability and dispositional goal orientation on performance, a learning goal orientation seems especially adaptive for high-ability individuals.

Taken together, the above findings show that more research is needed on the role of task difficulty, task complexity, and ability level as possible moderators of the goal orientation–learning relationship. Another important area for future research might be the compatibility between individual and situational goal orientations (Mathieu & Martineau, 1997; Potosky & Ramakrishna, 2002), and the content of goals individuals with a certain dispositional goal orientation choose in a performance setting (Brett & VandeWalle, 1999).

Motivation to Learn

Mathieu and Martineau (1997) classified pretraining motivation into three types: motivation to learn, valence-instrumentality-expectancy (VIE) beliefs, and self-efficacy. They argued that the direct measure of motivation to learn offers little diagnostic information and is susceptible to social desirability. VIE beliefs and self-efficacy might be better suited to predict training performance.

In a recent meta-analysis on antecedents and consequences of training motivation, motivation to learn was defined as 'the desire on the part of trainees to learn the training material' (Colquitt et al., 2000, p. 681). In this meta-analysis, motivation to learn was significantly related to training outcomes such as declarative knowledge ($r_c = 0.27$), skill acquisition ($r_c = 0.16$), reactions to training ($r_c = 0.45$), and transfer ($r_c = 0.58$). Colquitt and colleagues conclude that motivation to learn has an important influence over and above cognitive ability.

Given these relations of motivation to learn to learning outcomes it seems especially worth knowing how to predict motivation to learn. Pretraining self-efficacy ($r_c = 0.42$), internal locus of control ($r_c = 0.46$), achievement motivation ($r_c = 0.35$), conscientiousness ($r_c = 0.38$), and job/career related variables such as job involvement ($r_c = 0.20$), organizational commitment ($r_c = 0.47$), career planning ($r_c = 0.36$), and career exploration ($r_c = 0.25$) were all significantly related to motivation to learn. Anxiety ($r_c = -0.57$) was negatively related to motivation to learn. In sum, pretraining self-efficacy, valence, job involvement and personality, age, and climate explained 73% of the variance in motivation to learn.

Tharenou (2001) examined the relationships between motivation, defined as above, motivation through expectancy, and participation in training and developmental activities in a large-scale longitudinal study. Motivation through expectancy was defined as 'an employee's expectancy that putting in the effort to participate in training will result in skills, knowledge and

ability that leads to outcomes of value' (p. 600). Motivation through expectancy combined expectancy, instrumentality, and valence. Motivation to learn and motivation through expectancy both predicted participation in training and developmental activities. Of the VIE components, instrumentality was most predictive, that is, the more an employee expects knowledge and skills gained in training or developmental activity to lead to an extrinsic outcome, the more the employee participates in that training or activity. It was also shown that employer support was more beneficial for employees already high in motivation. The author concludes that motivation to learn and motivation through expectancy are significant and distinct contributors to participation in learning activities.

Tharenou's (2001) results concerning the effects of instrumentality were confirmed in a study on French workers (Guerrero & Sire, 2001). Instrumentality was measured as the degree to which trainees believed that their training success would result in skill development (an intrinsic outcome, e.g., efficiency at work) or professional advancement (an extrinsic outcome, e.g., adaptation at work and salary increase). Intrinsic instrumentality was higher for trainees who participated voluntarily, who were prepared and informed about the training content, and had support from their supervisor. Intrinsic instrumentality, in turn, predicted satisfaction with training and declarative knowledge. Extrinsic instrumentality was predicted by information about the training and supervisor support, but not by voluntary participation. Effects of extrinsic instrumentality were not tested.

Self-efficacy was proposed as a third form of motivation to learn (Mathieu & Martineau, 1997). It is defined as 'the extent to which they [the trainees] believe they can master training-related functions' (p. 197). One can further differentiate between learning self-efficacy (sometimes called learning confidence) and task-specific self-efficacy, that is, self-efficacy to perform a task on a given level during or after training. The latter can also be conceptualized as a training outcome (Colquitt et al., 2000).

Only a few studies in field settings were conducted about the effects of learning self-efficacy on training outcomes (Birdi, Allan, & Warr, 1997; Brown, 2001; Quiñones, 1995; Tracey, Hinkin, Tannenbaum, & Mathieu, 2001; Warr, Allen, & Birdi, 1999; Warr & Bunce, 1995; Warr & Downing, 2000). In these studies, learning self-efficacy was found to be related to positive reactions to training (Tracey et al., 2001), transfer motivation and frequency of use of technical equipment in a technical training (Warr et al., 1999), and knowledge in a vehicle technicians course (Warr & Bunce, 1995). In addition, learning self-efficacy was found to be related to performance ratings in a field study, also when controlling for previous performance ratings (Potosky & Ramakrishna, 2002). But learning self-efficacy did not predict learning and training outcomes over and above the effect of motivation to learn (Warr & Bunce, 1995). On the contrary, motivation to learn

predicted learning outcomes over and above the effect of learning self-efficacy (Quiñones, 1995).

However, the positive effects of task-specific self-efficacy in training contexts are well-established (Chen, Gully, Whiteman, & Kilcullen, 2000; Ford et al., 1998; Hertenstein, 2001; Kozlowski et al. 2001; Mangos & Steele-Johnson, 2001; Phillips & Gully, 1997; Steele-Johnson et al., 2000; Stevens & Gist, 1997; Towler & Dipboye, 2001; VandeWalle et al., 2001).

Self-efficacy in either form is comparable to the expectancy component of the VIE approach to motivation (Colquitt & Simmering, 1998; Mathieu & Martineau, 1997)—if the expectancy refers to effort-performance contingencies and not to a training performance–job performance contingency (Tharenou, 2001).

In summary, it seems that learning self-efficacy has little to add to the motivation to learn in the prediction of learning and training outcomes, and might be best regarded as an antecedent of motivation to learn (Colquitt & Simmering, 1998). The VIE approach to training motivation seems the most promising in predicting learning and training outcomes. Clearly, more research is needed about the differential effects of the VIE components on outcomes other than participation in training and developmental activities.

Cognitive Abilities

One of the frequently examined individual characteristics in the training literature is cognitive ability. Cognitive ability or fluid intelligence (Cattell, 1963), mechanics of mind (Baltes, 1997), or intelligence as a process (Ackerman, 1999) refers to the mental qualification or capacity to act financially, legally, mentally, physically, or in some other way (Ree, Carretta, & Steindl, 2001). Individual differences in this information processing capacity (working memory and processing speed) correlate with differences in learning, especially at initial stages in learning, when new information from the environment and recalled knowledge has to be coordinated and processed (Jensen, 1998).

A good predictor for training success is general cognitive ability (g), the single factor underlying different cognitive abilities tests (Jensen, 1998; Ree & Carretta, 1998; Schmidt & Hunter, 1998). Large studies on g and its relationship to training success across a wide variety of jobs have been conducted in the armed forces (Ree & Carretta, 1991; Ree et al., 2001). Amongst other instruments, the Armed Services Vocational Aptitude Battery (ASVB) assessing arithmetic reasoning, numerical operations, paragraph comprehension, word knowledge, coding speed, general science, mathematic knowledge, electronics information, mechanical comprehension, and automotive-shop information has been widely used. A study with a large military sample showed that training performance was more influenced by g

than by specific abilities (Ree & Carretta, 1991). Recent meta-analyses have confirmed these findings (Colquitt et al., 2000; Levine, Spector, Menon, Naranyanan, & Cannon-Bowers, 1996; Schmidt & Hunter, 1998). In the meta-analysis by Schmidt and Hunter (1998) the estimated predictive validity of *g* was 0.56 for training success. Colquitt et al. (2000) found strong relationships between cognitive ability and declarative knowledge ($r_c = 0.69$), skill acquisition ($r_c = 0.38$), and transfer ($r_c = 0.43$). Recently, Day, Arthur, and Gettman (2001) examined whether *g* is not only a valid predictor for training success and complex skill acquisition but also for the accuracy of knowledge structures as one type of learning outcome. In this study, knowledge structures refer to the representation of a complex video game which was to be learned in nine sessions over a period of three days. After a pause of four days, trainees were tested for skill retention and transfer. The results indicated that trainees with higher levels of *g* had knowledge structures that were more accurate (similar to an expert structure). The accuracy of knowledge structures mediated the relationship between general cognitive ability and skill retention but was less important for transfer. Thus, individuals with higher cognitive ability acquired a better comprehension of the job-task knowledge than did low ability individuals, and this better comprehension led to superior performance.

Because *g* is a strong predictor of training success across a variety of jobs and because no or only low incremental validity of specific cognitive abilities were found, some researchers have proposed that there is 'not much more than *g*' (e.g., Ree & Carretta, 1991, p. 321). However, Colquitt et al. (2000) have shown that motivation to learn has an incremental validity. There was 'much more than *g*' (p. 696). Together, the motivation to learn and ability explained 63% of the variance in declarative knowledge, 20% of the variance in skill acquisition, 9% of the variance in post-training self-efficacy, and 20% of the variance in affective reactions to trainings and utility judgements.

Another question is if training interventions that address the nature of cognitive abilities might facilitate learning and transfer (Carter, 2002; Kozlowski et al., 2001). Results from a study of Gully et al. (2002) indicate that participants benefit from training tailored according to their cognitive ability. Participants were trained to perform a simulated decision-making task in two different ways, namely error-encouragement or error-avoidance. Cognitive ability was measured by official and self-report Scholastic Assessment Tests. Persons with higher levels of cognitive ability seemed to benefit more from error-encouraging training than did individuals with lower ability: diagnosing and learning from errors led to better declarative knowledge, task performance, and higher self-efficacy in high ability individuals, but not in lower ability individuals.

Several questions remain open. It is not clear through which mechanisms cognitive ability affects learning. Furthermore, persons with lower ability may show the same level of performance as persons with higher abilities,

when there is enough time for training. In summary, more studies are neededto examine if and how these differences matter in complex real life settings.

Age

In many industrial countries, the workforce is aging. In Europe, the proportion of employees between 20 to 29 years of age will decrease by 20% and the proportion of people of the 50 to 64 age group will increase by more than 25% during 1995 and 2015 (Commission of the European Community, 1999; cf. for a detailed review of the research on age Warr, 2001).

There is considerable cross-sectional and longitudinal evidence that older employees participate less in formal or voluntary training and developmental activities (Warr & Fay, 2001; Warr & Birdi, 1998). They take longer to complete job-related training with similar performance than younger employees even if time is not restricted (e.g., Czaja & Sharit, 1998; Kramer, Larish, Weber, & Bardell, 1999; Salthouse, Hambrick, Kristen, & Dell, 1996; Sit & Fisk, 1999; Warr et al., 1999; Warr & Bunce, 1995; for a meta-analytic review see Kubeck, Delp, Haslett, & McDaniel, 1996). In addition, they find new tasks more difficult to learn (Warr et al., 1999), and they describe themselves as more conscientious, conventional, and modest, but less sociable, outgoing, and change-orientated (McRae et al., 1999; Warr, Miles, & Platts, 2001; Yang, McRae, & Costa, 1998). Practicing the task diminishes but does not eliminate age-related differences at initial stages of complex work skills acquisition (Czaja & Sharit, 1998; Salthouse et al., 1996; Sit & Fisk, 1999). In the context of work, the meta-analysis of Colquitt et al. (2000) revealed only a weak negative relationship between age and declarative knowledge ($r_c = -0.19$).

One explanation for older employees' difficulties to learn complex tasks refers to the finding that they process new information more slowly and that their working memory capacity is more limited (referred to as aspects of fluidintelligence, Czaja & Sharit, 1998; Salthouse et al., 1996; Verhaeghen & Salthouse, 1997). This finding does not rule out that within an open learning environment with self-paced tasks and special training or instructional compensation for age-related disadvantages older employees' output will parallel the performance of the younger individuals after a while (Paas, Camp, & Rikers, 2001; Van Gerven, Paas, Van Merrienboer, & Schmidt, 2002). Moreover, studies indicated that—although often lagging behind their younger colleagues—after some practice older participants were able to perform the task to a substantial degree of competence. It is an open question at which age learning a particular task becomes too slow and effortful compared to its benefits for the employee and his or her environment.

Can previous knowledge support learning? With increasing age, employees may get a broad and deep knowledge structure (Ackerman & Rolfhus, 1999; Horn & Noll, 1997). This knowledge structure helps in actively integrating new information and using established learning strategies (Charness, Kelley, Bosman, & Mottram, 2001; Darley, 1999). This is particularly the case when learning is relevant for the new task (Warr, 2001). At the same time, it can be difficult to disengage cognitively and emotionally from routines (Betsch et al., 2001) that may interfere with the acquisition of new skills (VanLehn, 1996). But it is possible that strategies will be developed to compensate for these disadvantages (Li, Lindenberger, Freund, & Baltes, 2001), possibly on the basis of previous declarative, and metacognitive knowledge. There is still little research on the employees' responses to the decline of some learning capabilities. In addition, it is difficult to predict age effects in particular jobs because it is difficult to describe jobs in terms of their demands on basic cognitive ability and knowledge (cf. Warr, 2001).

Compared to cognitive research, less research has examined non-cognitive factors such as motives and social influences. Older employees reported a lower motivation for learning (Warr & Birdi, 1998), but meta-analytic results indicated only a weak effect of age on motivation to learn ($r_c = -0.18$; Colquitt et al., 2000). Further analysis showed that older trainees described the training as less useful (instrumentality) than did others (Warr et al., 1999), more specifically that they perceive the training less as an advantage for their career (extrinsic rewards) than younger workers (Guerrero & Sire, 2001). Guerrero and Sire's study suggested that career related activities decrease as employees become older, but age and tenure do not influence the perception that training can help to develop their skills and to increase efficiency at work. Furthermore, no differences in the perceived value (valence) of some work behaviors and training activities were found (Colquitt et al., 2000; Warr & Birdi, 1998). According to Warr (2001), these findings refer to a positive feedback cycle: learning activity leads to greater motivation which in turn stimulates more learning activity. The key problem remains how to encourage older employees to initiate that cycle (Warr & Birdi, 1998).

Moreover, the relationship between age and post-training self-efficacy was moderately negative ($r_c = -0.32$; Colquitt et al., 2000; Guerrero & Sire, 2001). Maurer (2001) proposed that employees with higher self-efficacy for development will have more positive attitudes toward, and more frequent voluntary participation in, training and development activities.

Finally, the negative relationship between age and learning may also be due to self-perceptions and managers' perceptions (Chiu, Chan, Snape, & Redman, 2001; Warr, 2001). It was shown that stereotypical beliefs significantly influenced attitudes toward training, promotion, and retention of older workers (Chiu et al., 2001). The negative views of supervisors can provoke negative self-perceptions in older employees.

SITUATION CHARACTERISTICS

Learning is affected by the environment in which it takes place. As Colquitt et al. (2000) stated, surprisingly little research has been carried out on the impact of situational characteristics on learning and development. To summarize studies that investigated how situational characteristics affect learning, we use three of four situational categories suggested by Porras and Robertson (1992): specifically, we discuss organizational arrangements, social factors, and technology.

Organizational Arrangement

Opportunities for learning can vary with the formal elements of the organization that coordinate work activities of the employees. Such formal elements include strategy, formal structure, and reward systems. For example, rapidly changing workplaces in the computer industry demand a high priority of developmental behaviors to avoid technical obsolescence (Fossum et al., 1986; Noe et al., 1997). The organizational reward system (pay for performance, promotion, and skill-based pay) signals the importance of development and may stimulate or hinder developmental activities, either directly (e.g., pay for knowledge acquisition) or indirectly (e.g., pay for promotion attained through skill development, Baldwin & Magjuka, 1997). It is still an open research question how different pay systems influence the motivation to develop (cf. Noe et al., 1997).

Social Factors

Most research that examined the impact of situational characteristics as predictors of learning focused on management style and interaction processes within groups. Management style has a strong influence on learning and development activities through supervisor support and through the creation of a positive climate by managers. Meta-analytic findings of Colquitt et al. (2000) showed that supervisor support and positive climate are positively related to the acquisition of declarative knowledge ($r_c = 0.25$ and $r_c = 0.14$, respectively). Positive climate was additionally related to skill acquisition ($r_c = 0.18$), affective reactions to training ($r_c = 0.40$), and job performance ($r_c = 0.26$). Furthermore, learners seek more feedback when supervisors signal supportive behavior (Williams, Miller, Steelman, & Levy, 1999). This, in turn, might influence learning positively. The authors argued that support can reduce the costs of feedback-seeking in a public context by strengthening the ability to withstand the potentially negative experience of feeling incompetent or insecure. In their experiments, the supervisor support explained more variance than peer support.

Recent research showed that support both at the management level and at

the work group level as well as climate influence whether employees apply at work what they have learned in the training (Bennett, Lehman, & Forst, 1999; Facteau, Dobbins, Russell, Ladd, & Kudisch, 1995; Kozlowski & Salas, 1997; Roullier & Goldstein, 1993; Smith-Jentsch, Salas, & Brannick, 2001; Tracey, Tannenbaum, & Kavanagh, 1995; Warr et al., 1999). There are strong positive relationships between supervisor support and transfer ($r_c = 0.43$) and between positive climate and transfer ($r_c = 0.37$; Colquitt et al., 2000). Recently, longitudinal studies confirmed these effects (Smith-Jentsch et al., 2001; Warr et al., 1999). For example, in a study with technicians, support for transfer expressed by supervisors and peers led to an increased use of new equipment after training (Warr et al., 1999). In a simulation study, Smith-Jentsch et al. (2001) examined the effects of team leader support, team transfer climate, and trainee characteristics on pilot post-training performance. Team leader support has been induced through informal reinforcement of team members' trained behavior. Smith-Jentsch et al. (2001) found that team leader support influenced perceptions of team transfer climate and that perceptions of team transfer climate mediated the team leader's impact on trainees' performance. Maybe, team leaders can enhance transfer simply through informal reinforcement of trained behavior. Furthermore, Smith-Jentsch et al. (2001) found an interaction between trainee characteristics and perceived team climate. Individuals who had a predisposition toward the trained skilled (assertiveness) perceived the team transfer climate as more supportive.

Support and perceived organizational climate also have a positive impact on participation in developmental activities (Allen et al., 1999; Birdi et al., 1997). Particularly, perceived supervisor support seems to lead to higher self-management for career development (Allen et al., 1999) when employees perceive receptive feedback and feel empowered by their supervisors (London, Larsen, & Thisted, 1999).

Supervisor support ($r_c = 0.36$) and positive climate ($r_c = 0.39$) are moderately related to the motivation to learn (Colquitt et al., 2000). Moreover, these situational variables were positively related with pretraining self-efficacy. Together with peer support, they explained 35% of variance in pretraining self-efficacy. Guerrero and Sire (2001) showed that in addition to perceived supervisor support the information about the training (i.e., its usefulness, objectives, and quality) were also positively related to pretraining self-efficacy and training motivation.

Often, learning takes place in a collaborative setting with peers and others where various interaction processes can support or constrain learning activities. For example, according to Baldwin and Magjuka (1997) training initiative also depends on group composition that influences trainees' motivation. Colquitt et al. (2000) showed that peer support had a moderate relationship with the motivation to learn ($r_c = 0.37$) and with pretraining self-efficacy ($r_c = 0.27$).

Trainees can benefit from collaborative training settings in which they can observe each other's action and help each other. Shebilske, Jordan, Goettl, and Day (1999) contrasted individuals with dyadic training teams who learned to perform a complex dynamic computer task. Analysis showed that trainees benefit from having a team partner who concurrently performs one part of the task. Superior performance in the dyadic team training resulted from trainees' opportunity to observe their team partner performing a part of the task prior to their own performance. This finding indicates that groups provide opportunities for learning by observation (cf. also Brodbeck & Greitemeyer, 2000). Moreover, groups can facilitate learning through cooperative norms that include the willingness to support each other (Baldwin & Magjuka, 1997). There is considerable evidence that peer support has a strong relationship with transfer of training ($r_c = 0.84$; Colquitt et al., 2000).

In summary, social support and climate emerged as strong predictors for learning-relevant outcomes. Both factors have been mainly measured through employee self-reports. Such measures might be biased by attitudes towards the management. Therefore, other measures of the supports and constraints in the work environment are highly required. It is noteworthy that there is little insight into interactions between different situational characteristics. In a similar vein, Morrison, Upton, and Cordery (1999) argued that support of the supervisor might have no effect on transfer if job demands are high but job control is low. Until now, only little research has focused on teams as sources of social support for developmental activities. For example, it has been proposed that team members may help each other to be continuous learners (London & Smither, 1999).

Technology

The technology of an organization includes 'all factors that directly enter into the transformation of organizational inputs into organizational outputs' (Porras & Robertson, 1992, p. 732). Thus, technology comprises factors such as technical tools and equipment, job design, and workflow design. There is remarkably little research that examines the impact of these factors on learning. One exception is the study by Aiman-Smith and Green (2002) that investigated how people learn to operate technical systems. This study focused on the effects of system novelty and complexity. Interestingly, it turned out that users needed less time to become competent in operating the new system when the system had a high novelty for the user than when it had a lower novelty. One explanation is that the novelty of the system demands less relearning. In contrast, higher degrees of complexity were associated with slower competence development and with lower satisfaction. Moreover, the perceived value of the training was higher when novelty and complexity of the technology were low.

When it comes to job design variables as predictors of learning, the job demands-control model (Karasek & Theorell, 1990) suggests that jobs characterized by high demands and high control (i.e., active jobs) are associated with a high degree of learning, whereas jobs characterized by low demands and low control (i.e., passive jobs) offer little opportunities for learning. In an empirical study with production workers, Parker and Sprigg (1999) found that job control and low job demands were important predictors for three learning-related outcomes, namely perceived mastery (i.e., employees' belief that they can control or act on job demands that occur), role-breadth self-efficacy (i.e., employees' confidence that they can carry out a wide range of integrative, proactive, interpersonal activities that go beyond traditional purely technical tasks), and production ownership (i.e., breadth and proactivity of employees' role orientation). Particularly, high job control was positively associated with learning-related outcomes. In addition, results of two cross-sectional and one longitudinal analysis of Holman and Wall (2002) indicated that greater job control increases skill utilization as one learning-related outcome. Skill utilization refers to full use of one's skills and to the opportunity to develop new skills. Increased skill utilization in turn reduced strain (i.e., depression). A longitudinal study with a large sample of Dutch teachers showed that high job control and low job demands predicted learning motivation (Taris, Kompier, de Lange, Schaufeli, & Schreurs, 2003). Parker and Sprigg as well as Holman and Wall measured learning-related variables, but did not assess learning activities directly. Therefore, a definitive conclusion would be premature. However, these promising studies suggest that it is mainly job control that is related to learning. The results with respect to job demands were less consistent across studies and dependent variables.

So far research has focused on the influence of situational characteristics on learning. It might also be interesting to examine the reverse effect: how do employees engaged in training and development affect their work environment? Training and development cause changes in individuals and such changes might also have an impact on their roles, responsibilities, and social relationships with other team members and supervisors.

IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

In this chapter we have summarized research on learning at work. In this section, we propose some avenues future research may take and discuss how research findings may be implemented within organizational practice.

Avenues for Future Research

The positive short-term effects of training are well-documented and also positive long-term effects have been observed (Colquitt et al., 2000; Warr

et al., 1999). Of course, this does not imply that all training interventions result in positive outcomes. Much progress has been made in specifying promising training methods (Salas & Cannon-Bowers, 2001). Nevertheless, continuous research effort is needed to extend our knowledge about the factors that contribute to positive training outcomes.

Compared to extensive research evidence on the positive outcomes of training, the results of learning outside formal training received far less attention. Cross-sectional research shows that non-formalized learning is associated with positive outcomes (Lankau & Scandura, 2002; Noe, 1996; Sonnentag & Kleine, 2000). Longitudinal studies that examine the effects of learning outside formal training are still very rare (cf. for exceptions, Birdi et al., 1997; Warr & Bunce, 1995). However, when conceptualizing learning very broadly and also viewing information seeking within organizational socialization as a specific type of learning, then there are good reasons to assume that learning outside formal training has positive longer term effects (Morrison, 1993). Without doubt research on learning at work calls for well-designed longitudinal studies. Important research questions to be addressed include: Does learning outside formal training have a causal effect on outcomes such as job performance? Which learning activities have the most positive outcomes? How long does it take until positive results can be observed?

In past training and development research, attitude change as well as knowledge and skill acquisition, and performance gains have been the core outcome variables. There is increasing scepticism about the use of attitude measures as indicators of training effectiveness (Alliger et al., 1997). Thus, one should not exclusively rely on attitude measures when evaluating training outcomes. The use of performance measures is without doubt justified given the great relevance of job performance in work and organizational psychological research and practice (Ilgen & Pulakos, 1999; Sonnentag & Frese, 2002). Other potential outcome variables were beyond the scope of most studies. However, studies that did include other outcome variables showed that learning is associated with positive results such as reduced role ambiguity and increased job satisfaction (Lankau & Scandura, 2002). We are convinced that it will be worthwhile to pursue this line of research further and examine the effects of training and development on a broader range of outcome variables. Such variables may include perceptions of job stressors and well-being outcomes such as strain reactions and job satisfaction (Holman & Wall, 2002).

One can speculate that learning may not only result in positive outcomes. Learning puts additional demands on the individual and requires effort. When faced with learning necessities in addition to daily task requirements overload may result that in turn might lead to short-term strain reactions. In the longer term, these short-term reactions may be overcome and learning outcomes may result in increased satisfaction. Research is needed that

addresses such potential short-term strain reactions and identifies the factors crucial for turning short-term problems into long-term gains.

In addition to such individual level outcomes, other outcomes deserve research attention in the future. Relatively little is known about if and how individual learning experiences have an impact on work situation and organizational level variables, including job design features and organizational work practices and procedures. For example, one may speculate that employees who have invested much time and effort in learning expect better jobs that offer more responsibilities and more decision-making possibilities. In order to avoid high turnover rates and to give employees the opportunity to use newly developed skills, organizations may decide to provide better designed jobs. Thus, the 'fit' between individuals and jobs seems to be a core issue.

From our literature review there is clear evidence that individual characteristics are associated with learning outcomes. Particularly cognitive ability, learning goal orientation, motivation to learn, and task-specific self-efficacy were found to be positively related to training success (Colquitt et al., 2000). Until now, relatively few studies have examined the joint and interaction effects of these individual characteristics. A study by Bell and Kozlowski (2002) illustrates that it is promising to take a closer look at such interaction effects.

When it comes to situational predictors of learning, there is clear evidence that learning climate as well as supervisor and coworker support are important factors that facilitate and enhance learning (Smith-Jentsch et al., 2001). Surprisingly, there is rather little research on the role of workplace stressors and job design factors on learning. For example, one can assume that workplace stressors such as time pressure or situational constraints make the pursuit of learning activities difficult. Job control or task variety however, may enhance learning. Studies are still rare. First studies suggest that it will be worthwhile to put more emphasis on stressors and job design factors as situational predictors of learning (Holman & Wall, 2002; Parker & Sprigg, 1999). Moreover, it has to be noted that specific situational factors may be more beneficial for one specific group of individuals than for another. For example, only individuals high on motivation to learn may benefit from high control at work. Individuals however, who have a low motivation to learn will not take advantage of a high degree of control when it comes to the initiation of learning activities. Thus, the study of such interaction effects between individual and situational predictors will bring more light into those factors that enhance learning.

Training studies often used experimental or longitudinal designs to evaluate training outcomes. Research on learning outside formal training settings often relied on cross-sectional designs (Sonnentag & Kleine, 2000; Tann et al., 2001). Strictly speaking, these studies do not offer an unequivocal answer to the question whether informal learning activities lead

to outcomes such as improved job performance. It might also be that high job performance motivates individuals and creates opportunities (e.g., time and status) to engage in future learning. Finally, explanations referring to third variables also cannot be ruled out. Therefore, longitudinal studies are highly required. When conducting such studies researchers will face the challenge of determining the appropriate time lag for a follow-up measurement (Mitchell & James, 2001). It might be that there will not be one ideal time lag for all learning contents, learning activities, and learning situations, but it may depend on specific combinations of all these factors.

Future research should also pay increased attention to effect size issues. When examining the effect of learning on a specific outcome variable it is not only a question of whether the effect is statistically significant. For arriving at a clearer picture about the effects of various learning activities and their associated practical relevance it is crucial to consider effect sizes. A similar argument applies when studying predictors of learning.

Interestingly, many studies on training and development are relatively mute about the specific learning content. Thus, it seems relatively arbitrary as to what is learned in a specific training or development study. Moreover, specific attributes of the learning content have been studied only very rarely. However, one can assume that the degree of novelty, complexity, and amount of learning material is significant with respect to factors crucial for successful learning. A recent study showed that the radicalness and complexity of a technology to be mastered is related to training and learning quality (Aiman-Smith & Green, 2002). Thus, future research will benefit from explicitly taking learning content factors into account.

Implicit in most training and development studies is the notion that learners have to learn something new and have to 'add' (and integrate) this new knowledge and new skills to already existing knowledge and skills. However, changing work situations often require that employees unlearn long used procedures or transform them into new ones. Studies are needed that examine not only how learners accumulate new knowledge and skills but how they 'forget' and unlearn existing procedures (Niessen, in prep.). Moreover, relatively little is known about how individuals spontaneously and deliberately change their work routines and procedures to the better, also when not stimulated by external requirements. Identifying the underlying processes would be very helpful for arriving at a deeper and fuller understanding of work-related learning (Ohly, in prep.)

Practical Implications

In conclusion, research evidence suggests several implications for practice. Our review identified some key individual and situational characteristics that have a considerable impact on learning activities at work. These factors are motivation to learn and learning goal orientation, cognitive

ability, age, and situational characteristics such as climate and support. Thus, interventions to enhance and support learning activities and transfer should affect these key factors.

Motivation to learn is an important starting point. One cannot assume that motivation to learn applies to all kinds of employees. Instead, to improve motivation to learn, it is necessary that learning leads to an outcome that is valued by many. For example, learning might not be of value for employees who do not expect that participation in training or development results in further career advancement. Skill-based pay programs can be a solution (Murray & Gerhart, 1998). Payment on the basis of skills offers a value that most employees should strive for by participating in training or developmental activities. A necessary precondition is the perceived fairness of the pay program. Moreover, skill assessment must be reliable and pay increase should be really contingent on skill development. One cannot expect an increase in participation in training and development when pay increases are delayed or skill assessment is imprecise. In addition, learning seems to have a value for itself for learning-goal oriented employees.

There is considerable evidence that when older employees take part in learning and developmental activities they may experience more disadvantages. These disadvantages are caused by a decline in physical fitness, in cognitive abilities, and in self-confidence about their ability to learn and develop. Furthermore, older employees may have to cope with negative stereotypical social perceptions and judgments. There are several proposals for tailored training that take these adverse effects into account and that might support learning activities of older employees (Maurer, 2001; Warr, 2001). For example, because older employees show less educational initiative, they have to be encouraged to participate in learning activities by providing rewards (e.g., awards or skill-based pay). Training has to be voluntary, with no time restriction. If necessary, basic skills should be enhanced prior to training. It is necessary to provide appropriate learning strategies and instructions, and to increase learning. Additionally, organizational norms, especially negative stereotypes have to be changed, and a positive learning climate for all employees has to be created (for detailed information see Maurer, 2001; Warr, 2001).

Research showed that cognitive ability, especially *g*, is a strong and valid predictor for training success. Similar to age-specific interventions, self-paced learning and learning with less time restrictions, but also an increase in self-efficacy may support learning processes in employees with lower cognitive ability.

One might think of individual characteristics other than cognitive abilities as criteria for personnel selection. Based on the positive findings for dispositional learning goal orientation and motivation to learn, these individual characteristics might be of value, especially for jobs with high learning needs. For this purpose, specific instruments for assessing learning goal

orientation or motivation to learn are needed. However, before definite conclusions can be drawn, utility analysis based on large samples are necessary as it is not certain that the promising effect sizes found in relatively small numbers of existing studies justify using these characteristics for selection purposes.

Training should not only consider personal characteristics, but also situational characteristics such as climate and support. The positive effects of learning climate, supervisor support, and induced learning goal orientation stress the importance of the context in which learning or transfer take place. Presumably, the supervisor plays a crucial role when it comes to the design of the learning and transfer context. One straightforward intervention could be to train supervisors to support team members during the pretraining phase, learning phase, and transfer phase (see Tannenbaum, Smith-Jentsch, & Behson, 1998). Supervisors should assign learning goals to employees in addition to performance goals (VandeWalle, 1997), reward effort in addition to achievements, encourage employees for trying out new things (Roberson & Alsua, 2002), and should regard mistakes as a necessary step in the learning process (Gully et al., 2002). Aside from these day-to-day interventions, targeting at the organizational arrangements might also be promising. As mentioned above, reward structure can be changed so that the importance of learning is stressed (Noe et al., 1997).

CONCLUSION

To summarize, increasing research on training and development reflects the great relevance of learning in today's workplaces. Particularly in the area of training research much progress has been made. Research on development lags somewhat behind training research—a difference that is attributable to the relative novelty of development issues. However, we have witnessed many promising approaches with respect to research on development also. We are convinced that well-designed future studies will provide answers to the most relevant questions about learning at work and will help individuals and organizations to cope with increasing learning requirements.

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